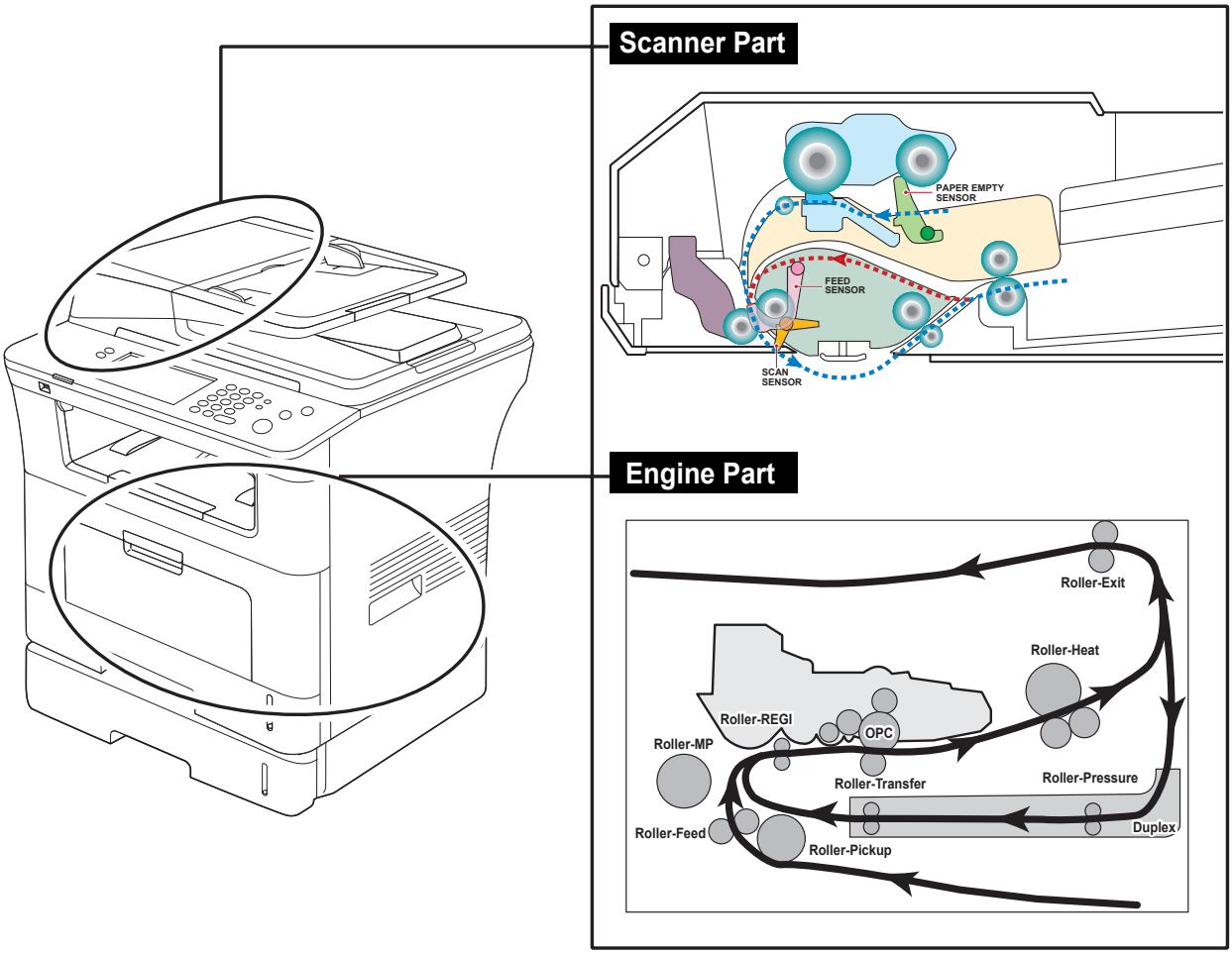
4. Alignment & Troubleshooting

This chapter describes some of the main service procedures including;
- Clearing paper jams
- Using the Diagnostic mode
- How to firmware upgrade
- Troubleshooting. etc.

4.1 Alignment and Adjustments

4.1.1 Paper path

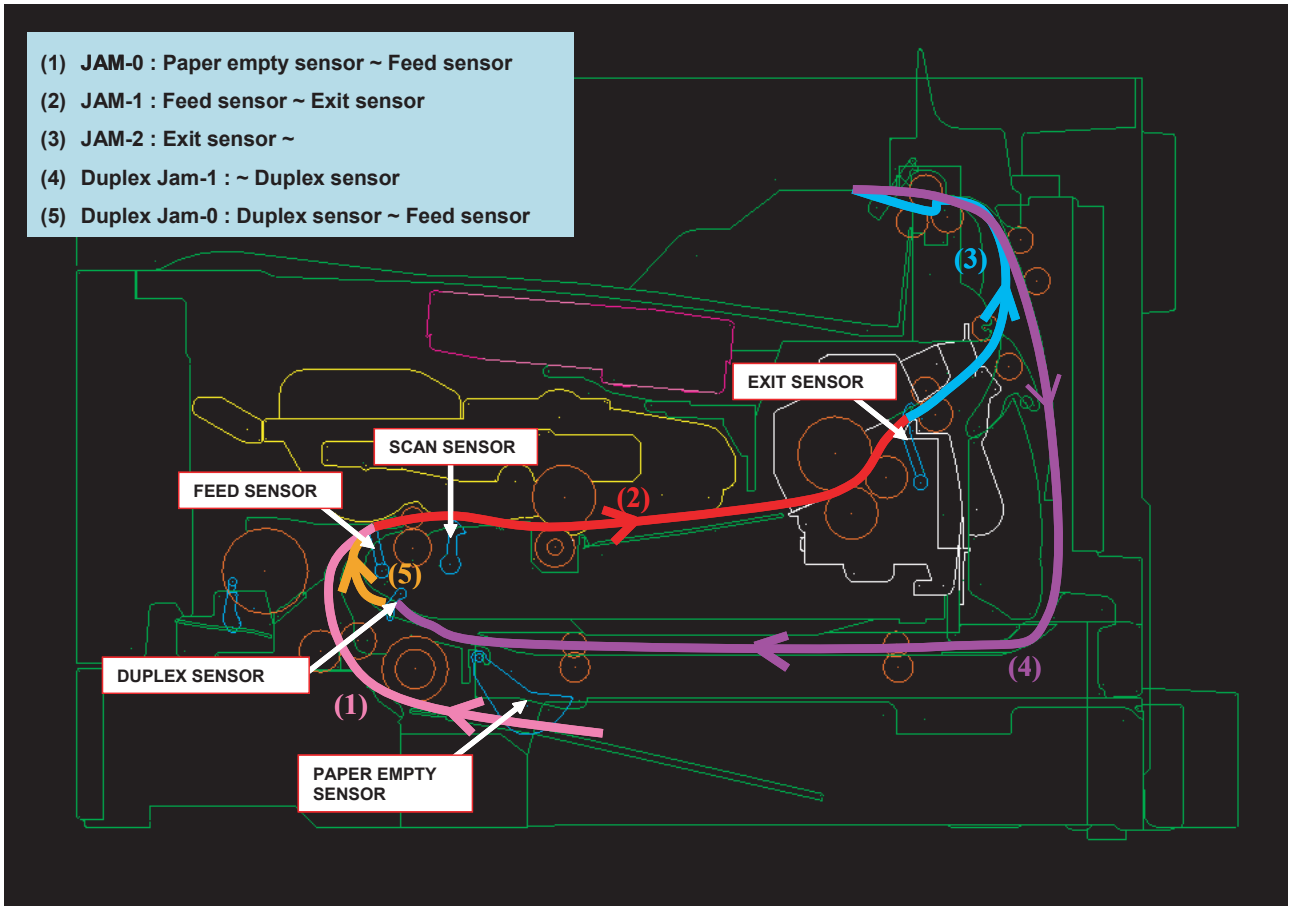


4.1.2 Clearing Paper Jams

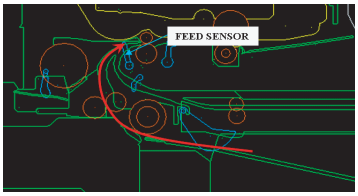
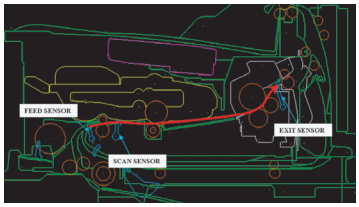
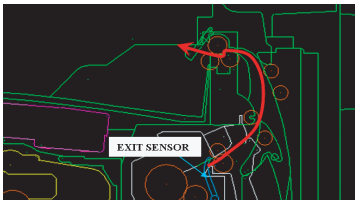
Occasionally, paper can be jammed during a print job. Some of the causes include:
• The tray is loaded improperly or overfilled.
• The tray has been pulled out during a print job.
• The front cover has been opened during a print job.
• Paper was used that does not meet paper specifications.
• Paper that is outside of the supported size range was used.

If a paper jam occurs, LCD window will show it's speeds. Find and remove the jammed paper. If you don't see the paper, open the covers.
Do not use a pinset or a sharp metal tool when removing a jam.
The covering of a metal part can be removed which can cause an electric leakage.

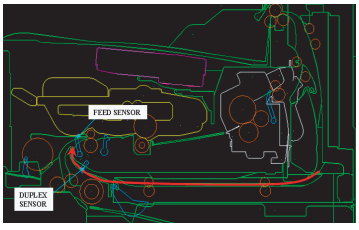
■ Description of ENGINE JAM type (Layout)



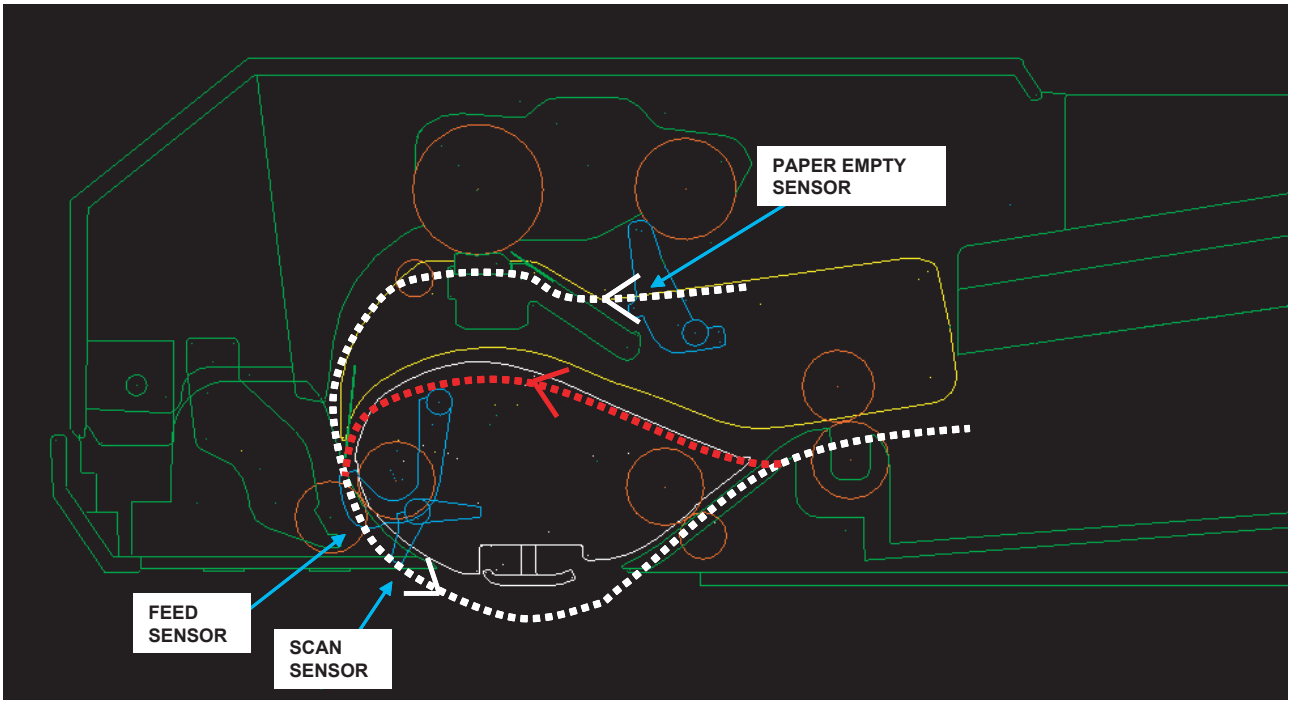
■ Description of ENGINE JAM type (Simplex)

Type	Case	Jam Removal	Jam Layout
Jam 0	Leading edge of media does not arrive at registration within a certain time after pick-up(If fails at a time,it tries pick-up again)	1. Pull out cassette 2. Remove jammed paper	
Jam 1	Leading edge of media does not arrive at Exit Sensor within a certain time after registration	1. Open front cover 2. Pull out toner cartridge 3. Remove jammed paper	
Jam 2	Trailing edge of media does not leave Exit Sensor within a certain time after touching registration	1. Open rear cover 2. Pull down jam lever on fuser unit and open fuser cover) 3. Remove jammed paper from exit	

■ Description of ENGINE JAM type (Duplex)

Type	Case	Jam Removal	Jam Layout
Duplex Jam 1	Trailing edge of media leaves Exit Sensor, and does not arrive at Duplex Sensor	1. Open rear cover 2. Remove jammed paper OR 1. Pull out duplex unit 2. Remove jammed paper from duplex unit	
Duplex Jam 0	Leading edge of media does not arrive at registration within a certain time after touching Duplex Sensor	1. Open rear cover 2. Remove jammed paper OR 1. Pull out duplex unit 2. Remove jammed paper from duplex unit	

■ Description of DADF JAM type

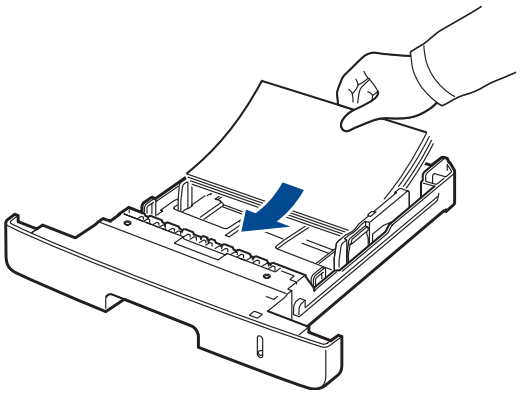


Type	Case	Jam Removal
Document Jam	All case of DADF Jam	1. Open DADF open cover 2. Remove jammed paper OR 1. Open DADF open cover and Lift up DADF middle cover 2. Remove jammed paper

4.1.2.1 Tips for avoiding paper jams

By selecting the correct media types, most paper jams can be avoided. When a paper jam occurs, follow the steps outlined on page 98.

- Ensure that the adjustable guides are positioned correctly.
  Do not overload the tray. Ensure that the paper level is below the paper capacity mark on the inside of the tray.
- Do not remove paper from the tray while your machine is printing.
- Flex, fan, and straighten paper before loading.
- Do not use creased, damp, or highly curled paper.
- Do not mix paper types in a tray.
- Use only recommended print media.
- Ensure that the recommended side of the print media is facing down in the tray, or facing down in the multi-purpose tray.
- If paper jams occur frequently when you print on A5/B5-sized paper: Load the paper into the tray with the long edge facing the front of the tray. If load the paper this way, printing both sides of the paper (Duplex) is not supported.



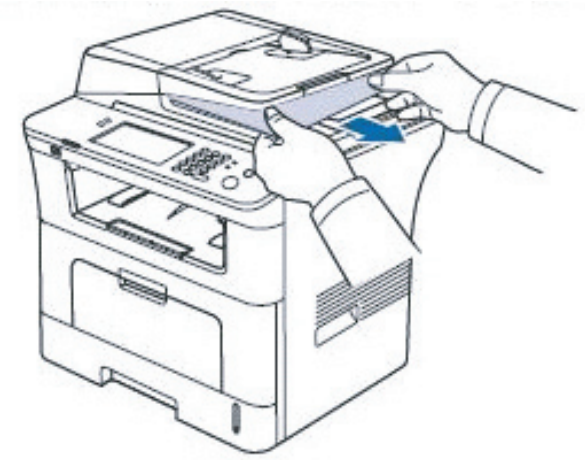
In the Printer Preferences window, set the page orientation to be rotated 90 degrees.

4.1.2.2 Clearing Original Document Jams

When an original jams while passing through the document feeder, a warming message appears on the display screen.

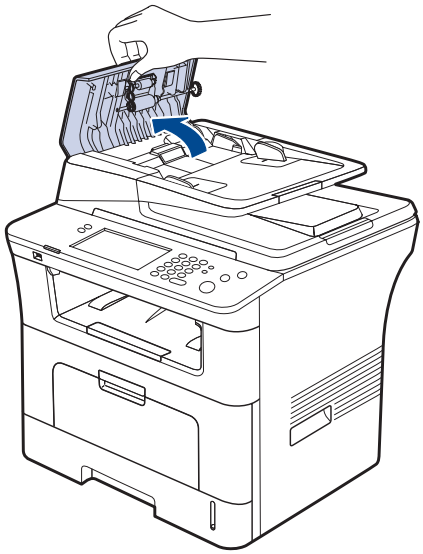
1. Remove any remaining pages from the document feeder.

2. Seize the misfeed paper, and remove the paper from the document output tray by carefully pulling it to the right using both hands.

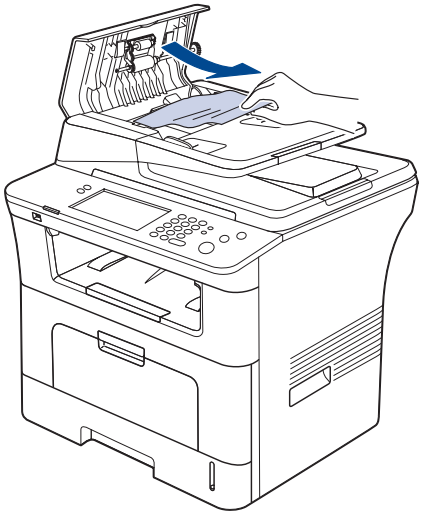


If you see no paper in this area, go to the next step.

3. Open the document feeder cover.

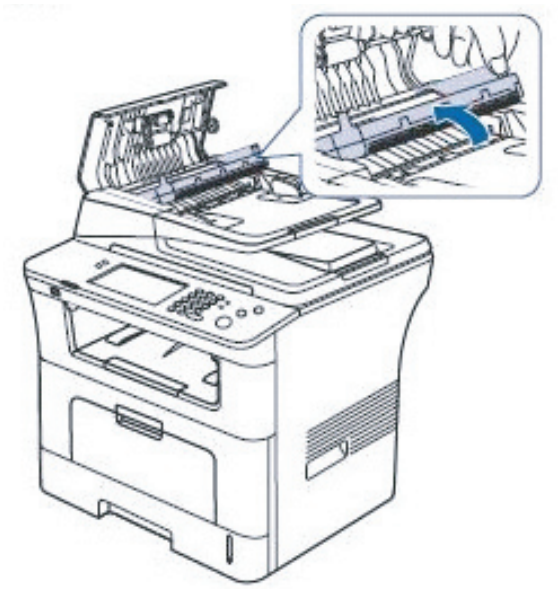


4. Gently remove the jammed paper from the document feeder.



If you see no paper in this area, go to the next step.

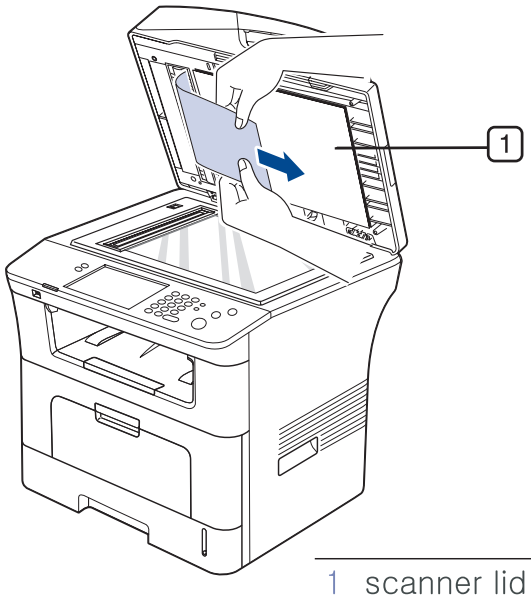
5. Open the document feeder cover. Gently remove the jammed paper.



6. Close the document feeder cover. Reload the pages you removed, if any, in the document feeder.

7. Open the scanner lid.

8. Grasp the misfeed paper and, using both hands, remove the paper from the feed area by carefully pulling it to the right.



1 scanner lid

9. Close the scanner lid. Load the removed pages back into the document feeder.

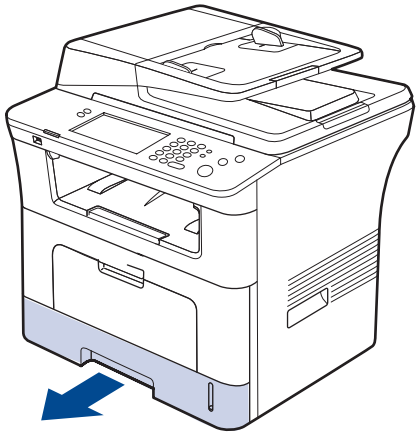
4.1.2.3 Clearing paper jams

When a paper jam occurs, a warming message appears on the display screen. Refer to the table below to locate and clear the paper jam.

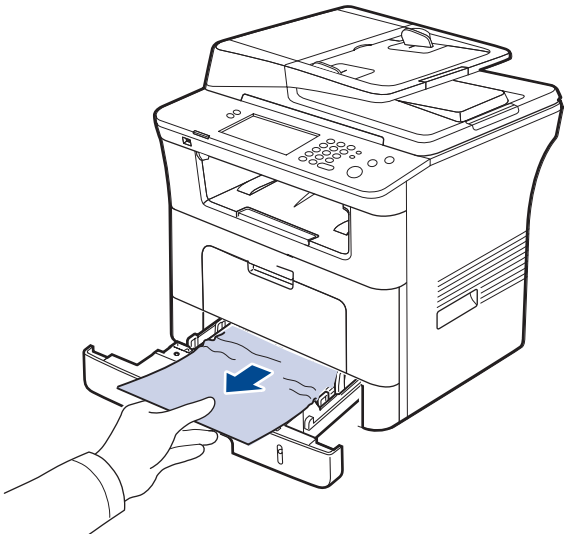
In tray 1

1. Open and close the front cover. The jammed paper is automatically ejected from the machine. If the paper does not exit, go to the next step.

2. Pull out tray 1.



3. Remove the jammed paper by gently pulling it straight out.



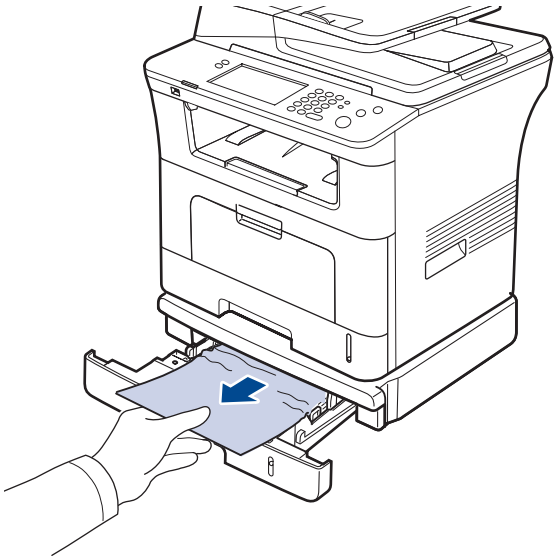
If the paper does not move when you pull, or if you do not see the paper in this area, check the fuser area around the toner cartridge.

4. Insert tray 1 back into the machine until it snaps into place. Printing automatically resumes.

In optional tray 2

1. Pull out optional tray 2 open.

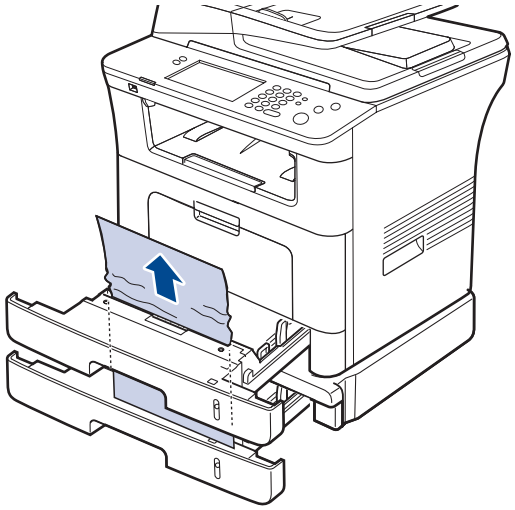
2. Remove the jammed paper from the machine.



If the paper does not move when you pull or if you do not see the paper in this area, stop and go to step

3. Pull tray 1 half-way out.

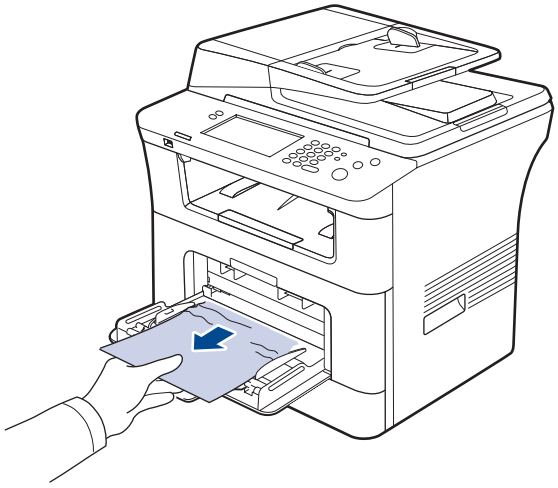
4. Pull the paper straight up and out.



5. Insert the trays back into the machine. Printing automatically resumes.

In the multi-purpose tray

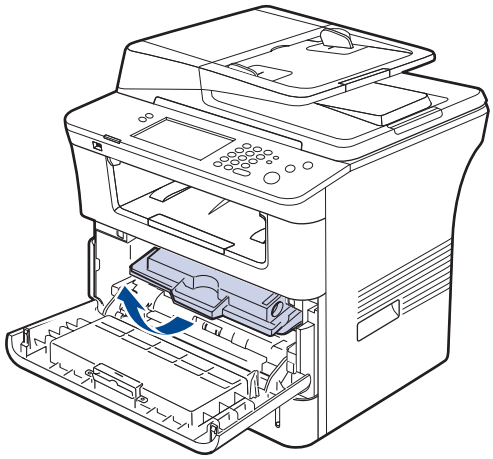
1. If the paper is not feeding properly, pull the paper out of the machine.



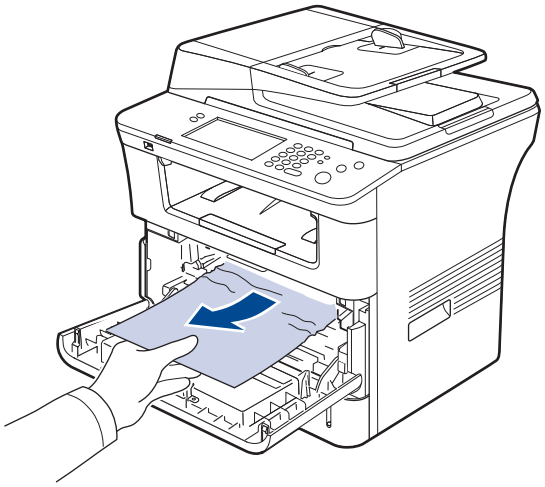
2. Open and close the front cover to resume printing.

Inside the machine

1. Open the front cover and pull the toner cartridge out, lightly pushing it down.



2. Remove the jammed paper by gently pulling it straight out.

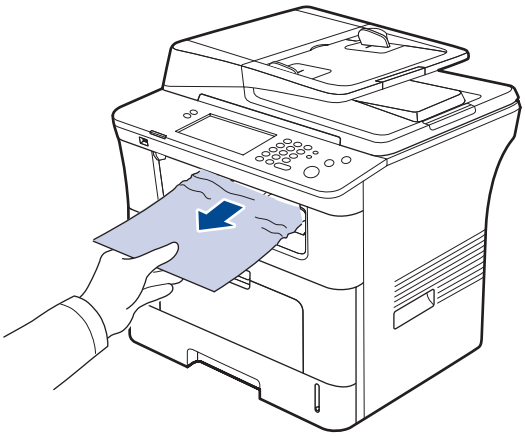


3. Replace the toner cartridge and close the front cover. Printing automatically resumes.

In exit area

1. Open and close the front cover. The jammed paper is automatically ejected from the machine.

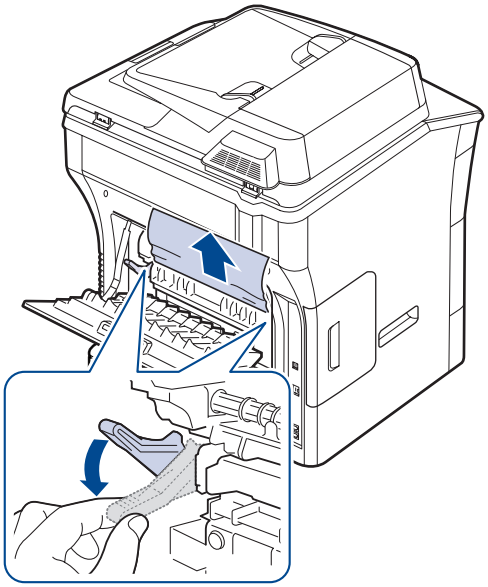
2. Gently pull the paper out of the output tray.



If you do not see the jammed paper or if there is any resistance when you pull, stop and go to the next step.

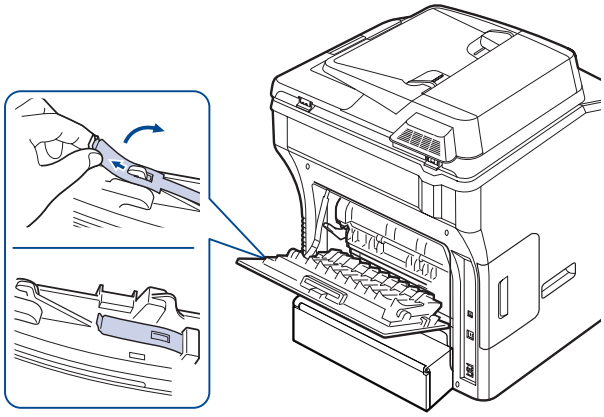
3. Open the rear cover.

4. If you see the jammed paper, push the pressure lever on each side up and remove the paper. Skip to step 9.

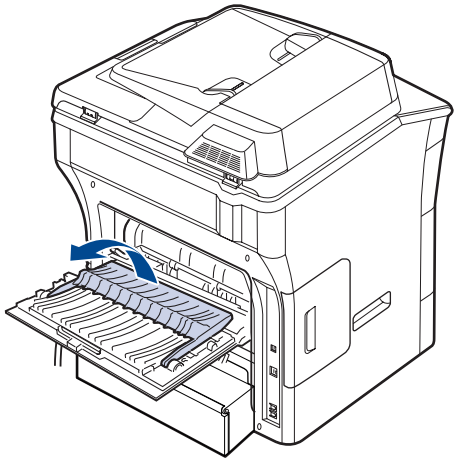


If you still do not see the paper, go to the next step.

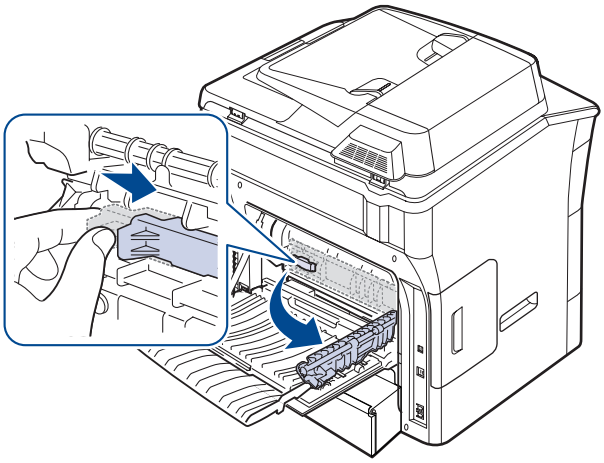
5. Release the white strip, the rear cover stopper, and fully open the rear cover, as shown.



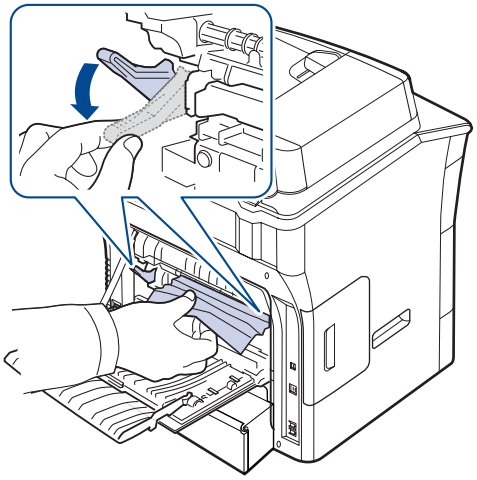
6. Unfold the duplex guide fully.



7. While pushing the fuser lever to the right, open the fuser door.



8. Pull the jammed paper out.If the jammed paper does not move when you pull, push the pressure lever on each side up to loosen the paper, and then remove it.



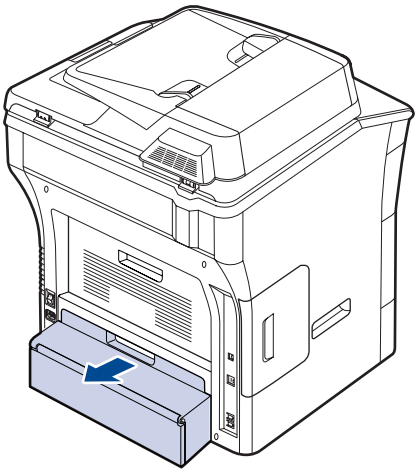
9. Return the lever, door, stopper, and guide to their original position.

10. Close the rear cover. Printing automatically resumes.

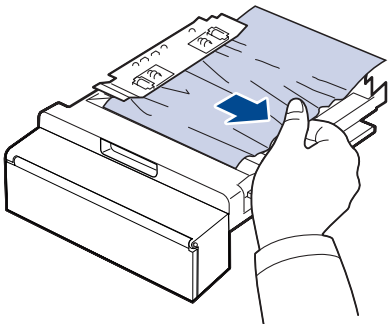
In the duplex unit area

If the duplex unit is not inserted correctly, a paper jam may occur. Make sure that the duplex unit is inserted correctly.

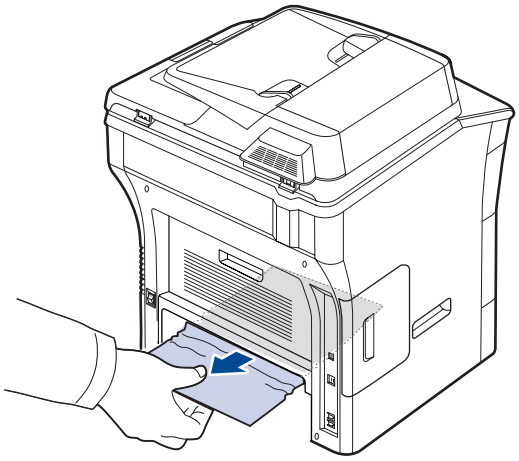
1. Pull the duplex unit out of the machine.



2. Remove the jammed paper from the duplex unit.



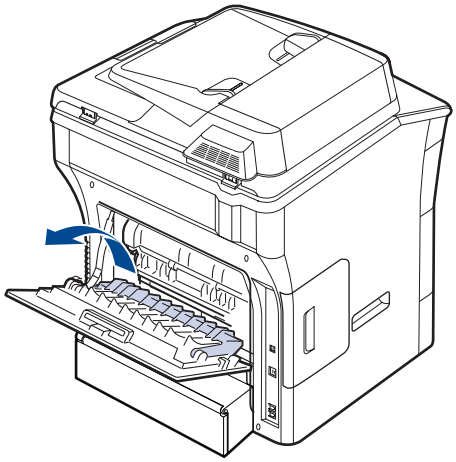
If the paper does not come out with the duplex unit, remove the paper from the bottom of the machine.



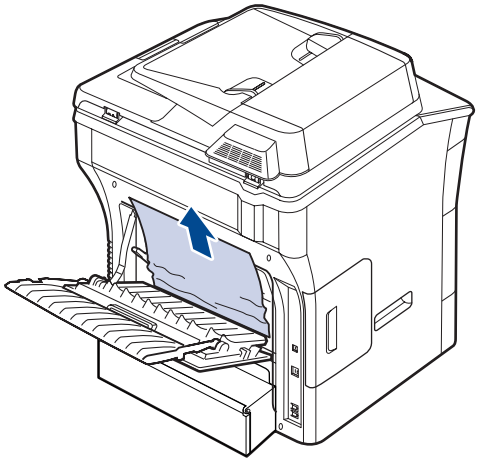
If you still do not see the paper, go to the next step.

3. Open the rear cover.

4. Unfold the duplex guide fully.

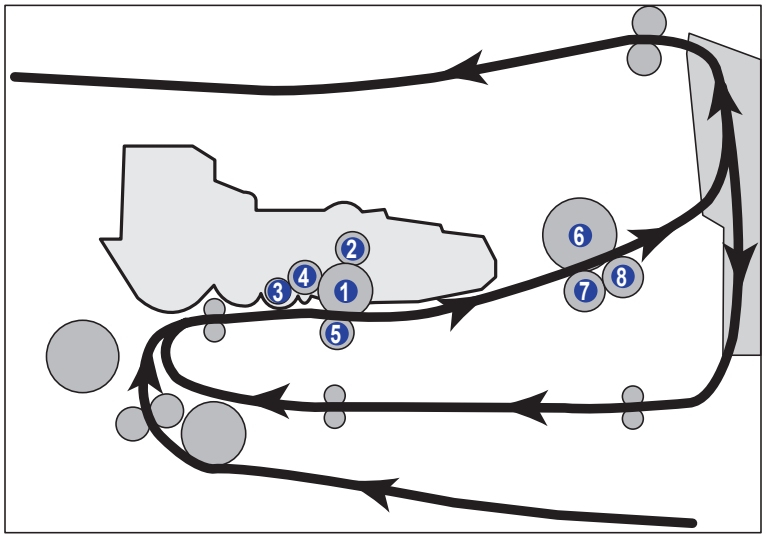


5. Pull the jammed paper out.



4.1.3 Abnormal Image Printing and Defective Roller

If abnormal image prints periodically, check the parts shown below.



1. OPC Drum
2. Charge Roller
3. Supply Roller
4. Developing Roller
5. Transfer Roller
6. Heat Roller
7. Pressure Roller1
8. Pressure Roller2

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	44.9mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	77.8mm	Black spot and fuser ghost
7	Pressure Roller1	62.8mm	Black side contamination
8	Pressure Roller2	50.2mm	Black side contamination

■ Repetitive defect Image check page

Print this page. Align the this page and the printed defect image and find the defective roller.

4.1.4 Control Panel overview

1	**Machine Setup**	Guides you to the machine setup and advanced settings.
2	**Job Status**	Shows jobs currently running, queued jobs and completed.
3	**Status**	Shows the status of your machine.
4	**Display screen**	Displays machine's current status and prompts during an operation. Set menus easily using the touch screen.
5	**Numeric keypad**	Dials fax number, and enters the number value for document copies or other options.
6	**Clear:**	Deletes characters in the edit area.
7	**Redial/Pause**	In standby mode, redials the last number; or in edit mode, inserts a pause into a fax number.
8	**On Hook Dial**	Engages the telephone line.
9	**Interrupt**	Stops a job in process to do an urgent copy job.
10	**Clear All**	Reverts the current settings to default values.
11	**Power Saver**	Sends the machine into power saver mode. You can also turn the power on and off with this button.
12	**Stop**	Stops an operation at any time. The pop-up window appears on the screen showing the current job that the user can stop or resume.
13	**Start**	Starts a job.

4.1.4.1 Introducing the touch screen and useful buttons

Touch screen

The touch screen allows for user-friendly operation of the machine. Once you press the home icon ( ) on the screen, it shows the Main screen.

- : Shows Help. You can find the explanation by feature contents.
- Copy: Enters the Copy menu.
- Fax: Enters the Fax menu. (Optional)
- Scan: Enters Scan to Email, NetScan, Scan to Server menu.
- Stored Documents: Enters the Stored Documents menu.
- USB: When USB memory is inserted into the USB memory port on your machine, USB icon shows on the display screen.
- SmarThru Workflow: Enters the SmarThru Workflow menu. (Optional)
- Toner Info.: Shows amount of toner used.
- LCD Brightness: Adjusts the brightness of the touch screen.
- : You can change the display language.
- : Guides you to remove the USB memory devices from the machine. Follow the instruction on the LCD. This icon appears only when you connect an USB memory module.
- Logout: Logs out from the currently logged in account.

Machine Setup button

When you press Machine Setup button, you can browse current machine settings or change machine values.

- This button allows you to move to Copy, Fax, Scan, Stored Documents menu directly.
- Machine Status: Shows the current status of the machine.
- Admin Setting: Allows an administrator to set up the machine.
- Usage Page Report:You can print the report on the amount of printouts depending on the paper size and type.

Job Status button

When you press Job Status button, the screen shows the lists of currently running jobs, queued jobs and completed jobs.

- Current Job tab: Shows the list of jobs in progress and pending.
- Completed Job tab: Provides the list of completed jobs.
- Active Notice tab: Displays any error codes that have occurred.
- No.: Gives the order of jobs.
- Job Name: Shows job information like name and type.
- Status: Gives the current status of each job.
- User: Provides user name, mainly computer name.
- Job Type: Displays details of the active job, such as job type, recipient phone number and other information.
- Detail: Shows the detailed information of the selected option on the Current Job, Completed Job and Active Notice list.
- Delete: Removes the selected job from the list.
- Delete All: Removes all the jobs from the list.
- Close: Closes the job status window and switches to previous view.

Power Saver button

When the machine is not in use, save electricity with the provided power save mode. Pressing this button puts the machine into power save mode.
If you press Power Saver button for more than two seconds, a window appears, requesting that you turn the power off. If you choose Yes, the power is turned off.
This button can also be used to turn the button on.

Status		Description
Off		• The machine is not in the power save mode. • The machine is in the low power save mode.
Blue	On	machine is in the power save mode.
	Blink	The machine is in the ready power save mode.

Interrupt button

When you press Interrupt button, the machine goes into interrupt mode which means it stops a printing job for urgent copy job. When the urgent copy job completes, the previous printing job continues.

Status		Description
Off		The machine is not in interrupt printing mode.
Blue	On	The machine is in interrupt printing mode.

4.1.5 Understanding The Status LED

The color of the Status LED indicates the machine's current status.

Status		Description
Off		• The machine is powered off-line. • The machine is in power save mode. When data is received, or any button is pressed, it switches to on-line automatically.
Green	Blinking	• When the backlight slowly blinks, the machine is receiving data from the computer. • When the backlight blinks rapidly, the machine is printing data.
	On	• The machine is powered on and can be used.
Red	Blinking	• A minor error has occurred and the machine is waiting for the error to be cleared. Check the display message. When the problem is cleared, the machine resumes. • The toner cartridge is near the end of its life. Order a new toner cartridge. You can temporarily improve print quality by redistributing the toner.
	On	• The toner cartridge is totally empty. Remove the old toner cartridge and install a new one. • A paper jam has occurred. • The cover is opened. Close the cover. • There is no paper in the tray. Load paper in the tray. • The machine has stopped due to a major error. Check the display message.

4.1.6 Menu overview

4.1.6.1 Menu Map

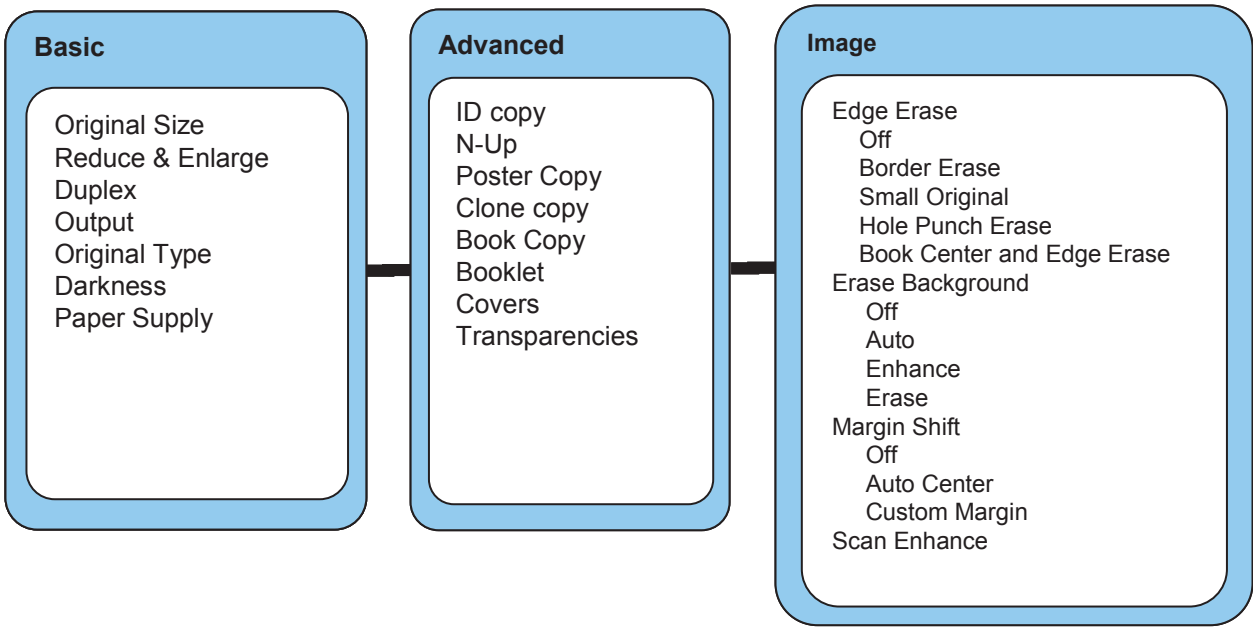
The control panel provides access to various menus to set up the machine or use the machine's functions. These menus can be accessed by pressing Machine Setup, Job Status, or touching menus on the display screen. Refer to the following table.

NOTE - Some menus may not appear in the display depending on options or models. If so, it is not applicable to your machine.

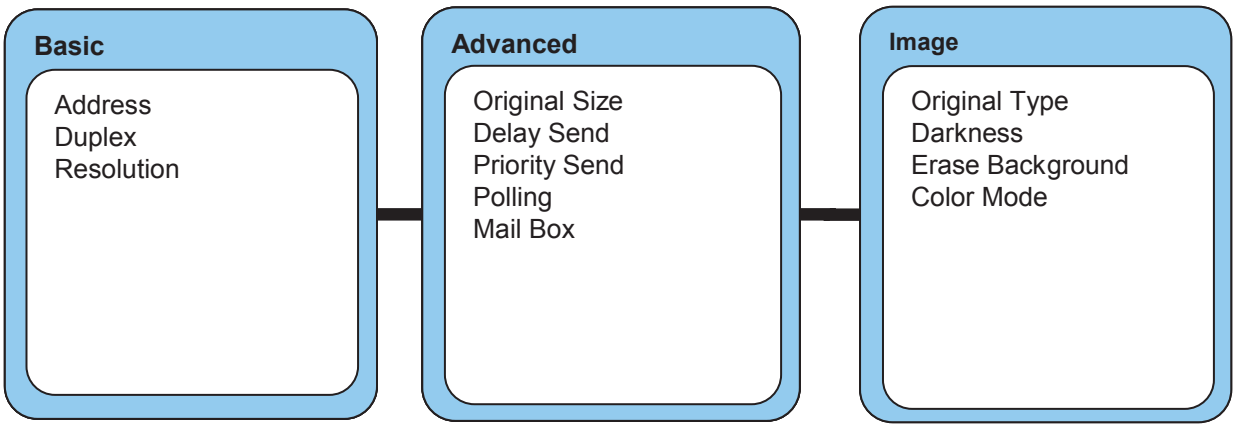
Main screen

The main screen is shown on the display screen on the control panel. Some menus are grayed out depending on your model.

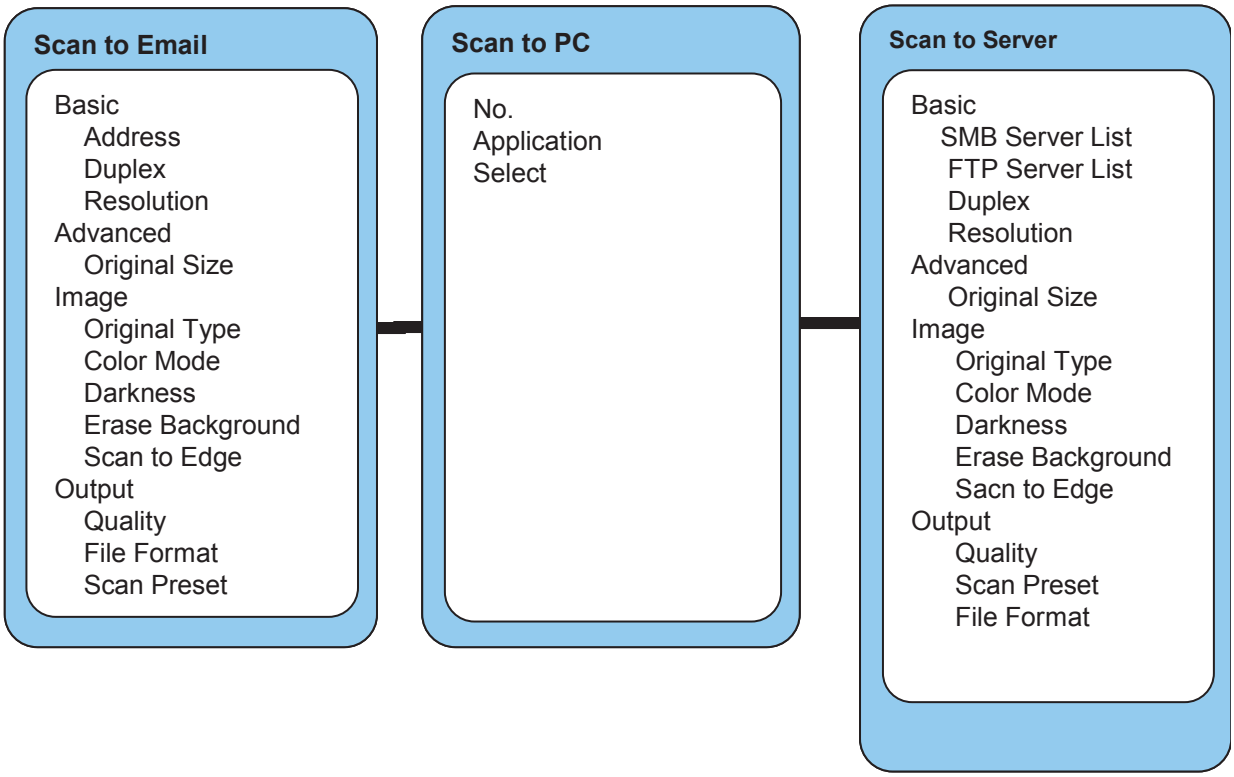
Copy Menu Map



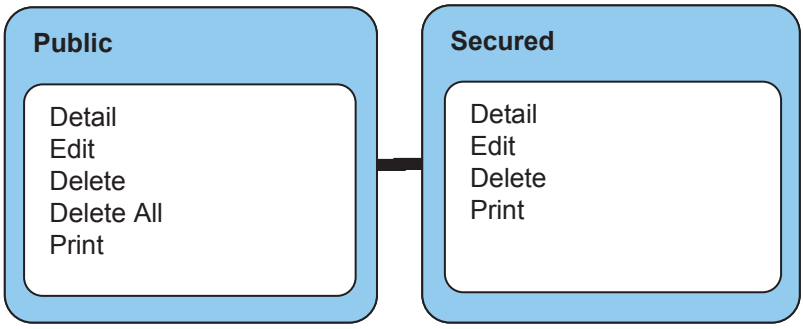
Fax Menu Map



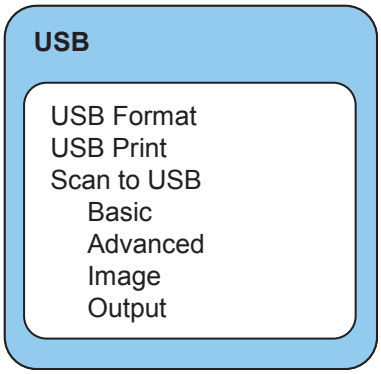
Scan Menu Map



Stored Documents Menu Map

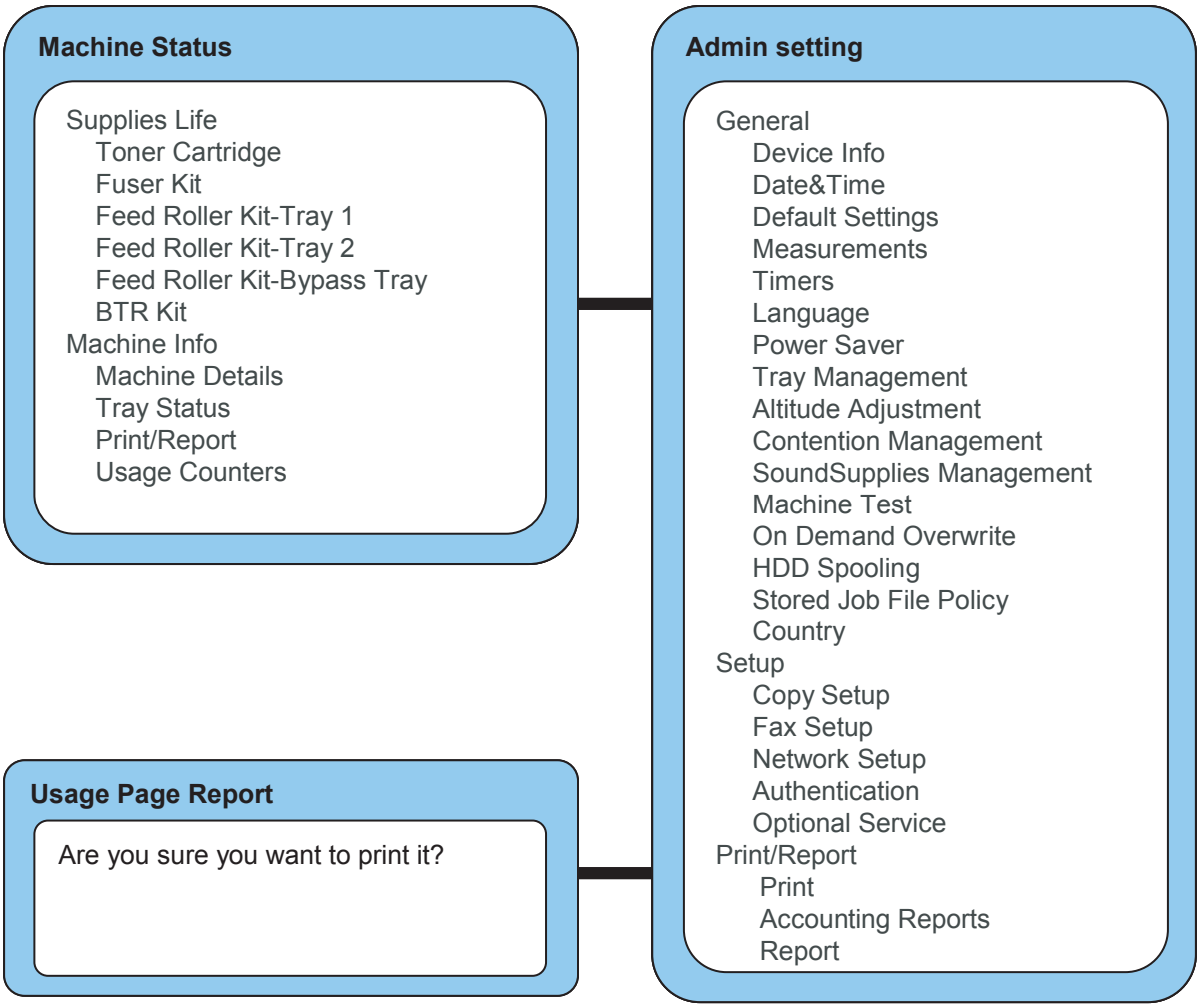


USB Menu Map



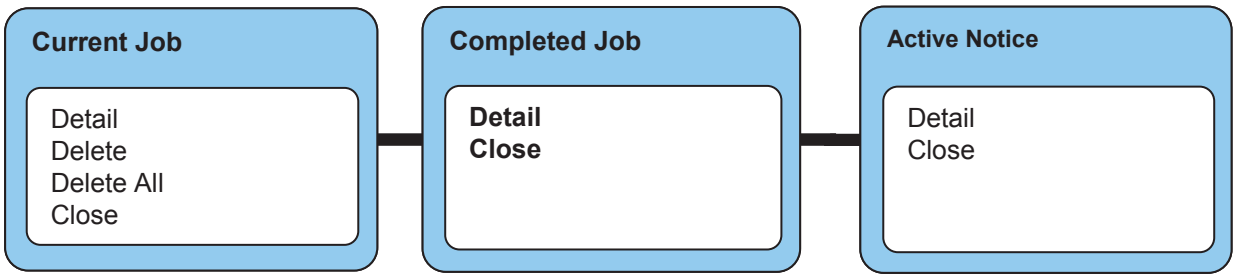
Machine Setup button

When you press the Machine Setup button on the control panel, the screen displays two menus. Machine Status shows the supplies life, billing, counters and reports. Admin Setting lets you set the advanced setup to use your machine in depth and conveniently. Usage Page Report prints a report on the number of printouts based on the paper size and type.



Job Status button

This menu shows the job in process, jobs waiting and, in completed, and error messages.



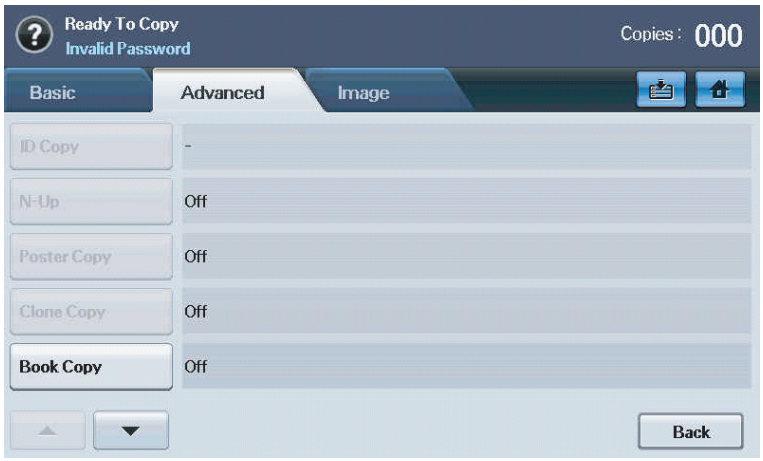
4.1.6.2 Understanding the Copy screen

When you press Copy on the Main screen, the Copy screen appears which has several tabs and lost of copying options. All the options are grouped by features so that you can configure your selections easily. If the screen displays an other menu, press Home button to go to the Main screen. If you want to know more information for copy screen, please consult the user manual.

Basic Tab

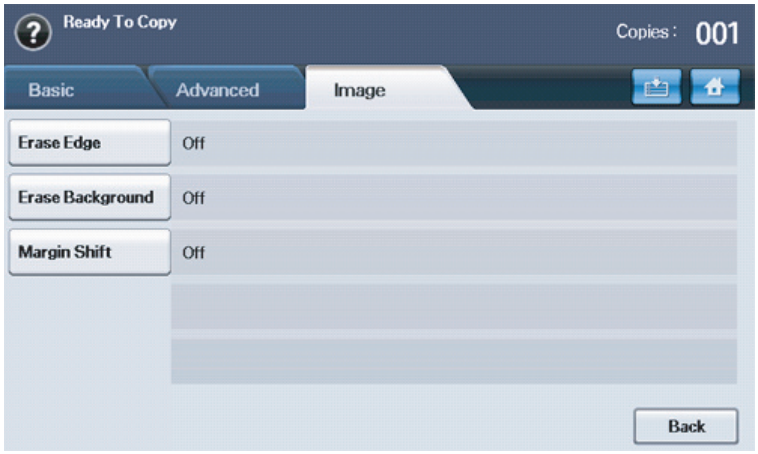
- Original Size : Selects the size of the originals.
- Reduce/Enlarge : Reduces or enlarges the size of a copied image.
- Duplex : Sets the machine to print copies on both sides of the paper.
- Output : Selects Collated or Uncollated copy options.
- Original Type : Improves the copy quality by selecting the document type for the current copy job.
- Light, Dark : Adjusts the brightness level to make a copy that is easier to read, when the original contains faint markings and dark images.
- Paper Supply : Selects the paper supply tray.
- Erase Edge : Allows you to erase punch holes, staple marks, and fold creases along any of the four documents edges.

Advanced Tab



- ID Copy: Prints 2-sided originals on one sheet of paper. This feature is helpful for copying a small-sized item, such as a business card.
- N-Up: Prints 2 or 4 original images, reduced to fit onto one sheet of paper.
- Poster Copy: Prints a large image into divided 9 pages.
- Clone Copy: Prints multiple image copies from the original document on a single page.
- Book Copy: Allows you to copy an entire book.
- Booklet: Creates booklets from a sequential set of either 1-sided or 2-sided originals.
- Covers: Automatically adds covers to your copied set using stock taken from a different tray.
- Transparencies: Adds a blank or printed divider between transparencies within a set.

Image Tab



- Erase Edge: Allows you to erase punch holes, staple marks, and fold creases along any of the four documents edges.
- Erase Background: Prints an image with no background.
- Margin Shift: Creates a binding edge for the document.

4.1.6.3 Understanding the FAX screen

When you press Fax on the Main screen, the Fax screen appears which has several tabs and lost of fax options. All the options are grouped by features so that you can configure your selections easily.If the screen displays an other menu, press Home button to go to the Main screen. If you want to know more information for Fax screen, please consult the user manual.

Basic Tab

- Fax number input area : Shows the recipient's fax number using the number keypad on the control panel. If you configured the phone book, press Individual or Group.
- Add No : Lets you add more destinations.
- ← : Deletes the last digit entered.
- C : Removes all digits of the selected entry.
- Remove : Removes the selected fax number entry.
- Remove All : Removes all the fax numbers in the input area.
- Address : Picks up the frequently used fax numbers directly from your machine or from SyncThru Web Service.
- Duplex : Selects whether the machine send faxes one side of the original, both sides of the original.
- Resolution : Adjusts the resolution options.

Advanced Tab

- Original Size: Selects the size of the original document. Press OK to update current setting.
- Delay Send: Sets the machine to send a fax at a later time without your intervention.
- Priority Send: Sends an urgent fax before reserved operations.
- Polling: Used when the receiver requests the document to be faxed remotely at sender's absence or vice versa. In order to use the polling function, the originals must be previously stored in the machine.
- Mailbox: Used to store a received fax or originals in the machine memory which are ready to be polled. You can use a mailbox on the same machine you are using, or the one on a remote machine. Each mailbox has a corresponding mailbox number, name and password.
- Back: Returns to the Basic tab.

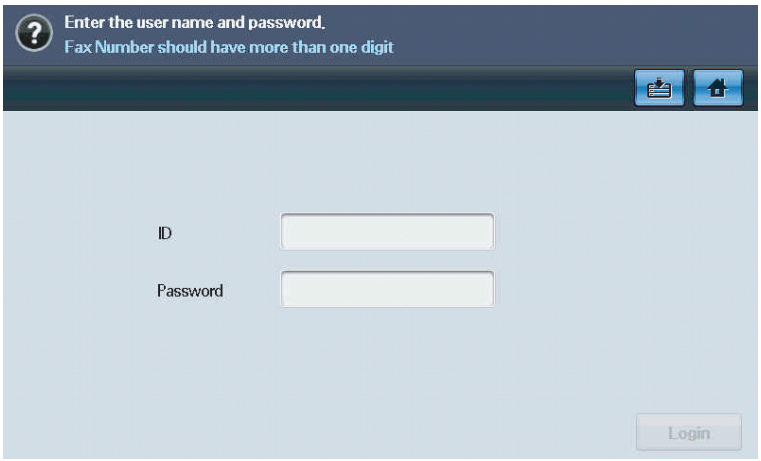
Image Tab

- Original Type: Enhances the fax quality based on the type of the original document being scanned.
- Darkness: Adjusts the level of lightness or darkness of the fax.
- Erase Background: Reduces dark backgrounds or paper patterns as in newspaper originals.
- Color Mode: Selects whether the user sends the fax in mono or color.
- Back: Returns to the Basic tab.

4.1.6.4 Understanding the SCAN screen

To use the scanning feature, press Scan on the Main screen. If the screen displays an other menu, press home button to go to the Main screen.

If the message asking Auth. ID and Password, it means the network administrator has set the authentication in SyncThru Web Service.



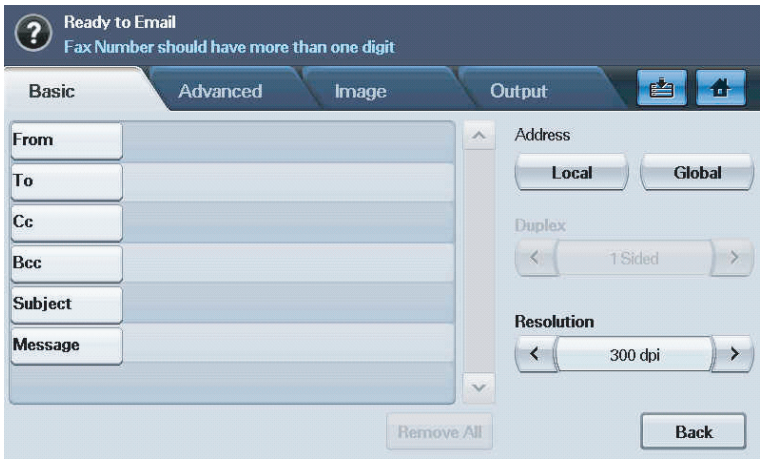
Press Scan to Email, Scan to PC Scan to Server.

• Scan to Email: Scans and sends the scanned output to the destination by email.
• Scan to PC : Scans and sends the scanned output to your PC.
• Scan to Server: Scans and sends the scanned output to the destination with SMB and FTP.

Basic tab

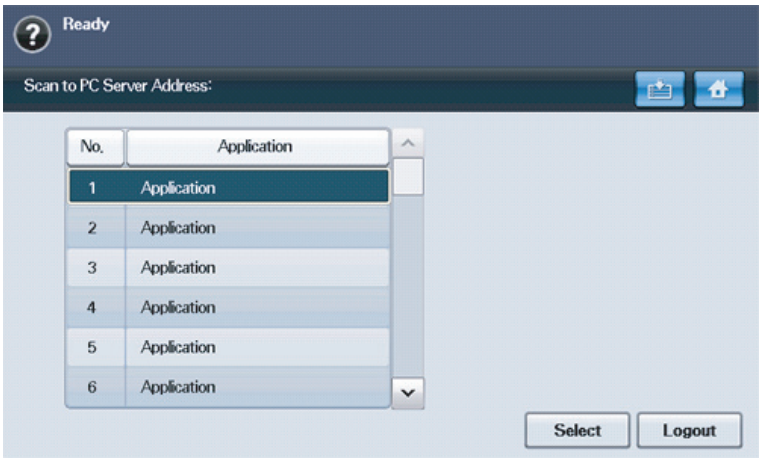
This section explains the Basic tab of Scan to Email and Scan to Server, and NetScan's basic screen.

- Scan to Email



- From: Sender's email address.
- To/Cc/Bcc: Recipients' addresses. Cc is for copies to an additional recipient and Bcc is for the same as Cc but without their name be displayed.
- Subject/Message: Subject and message of the email.
- Remove All: Erases everything in the input area.
- Address: Inputs the recipient's address just by pressing stored addresses. You can store frequently used email addresses from your computer using the SyncThru Web Service.
- Duplex: Selects whether the machine scans on one side of the paper (1 Sided), both sides of the paper (2 Sided), or both sides of paper but back is rotated 180 degrees (2 Sided, Rotate Side 2).
- Resolution: Selects the scanning resolution value.
- Back: Returns to the previous screen. If the network authentication is enabled, the log off confirmation message popes up and closes Scan to Email.

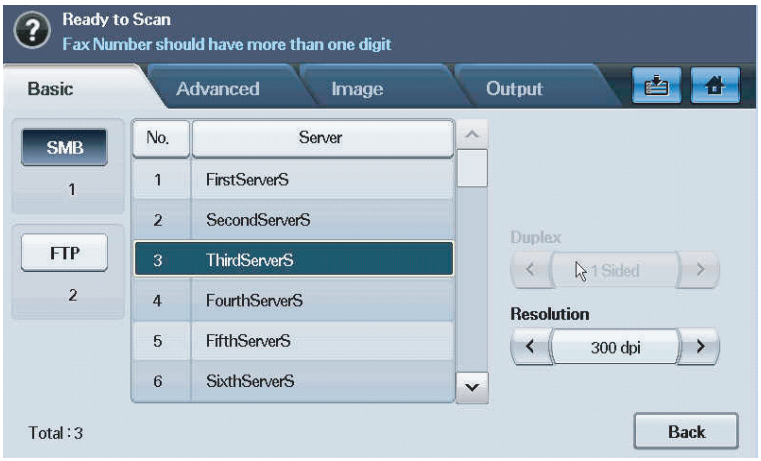
- Scan to PC



If the authentication for network appears, you have to enter user name and password to enter the Scan to PC screen.

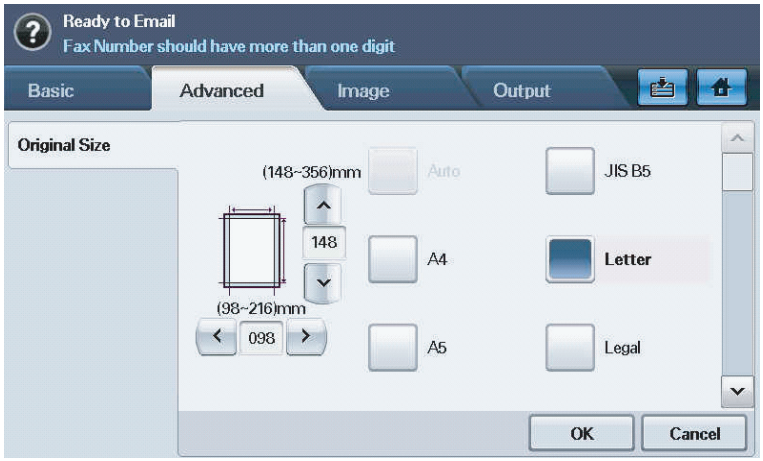
- No.: Lists the number in order for application programs.
- Application: Shows the available application programs from your computer.
- Select: Moves to the application program you have selected.

- Scan to Server



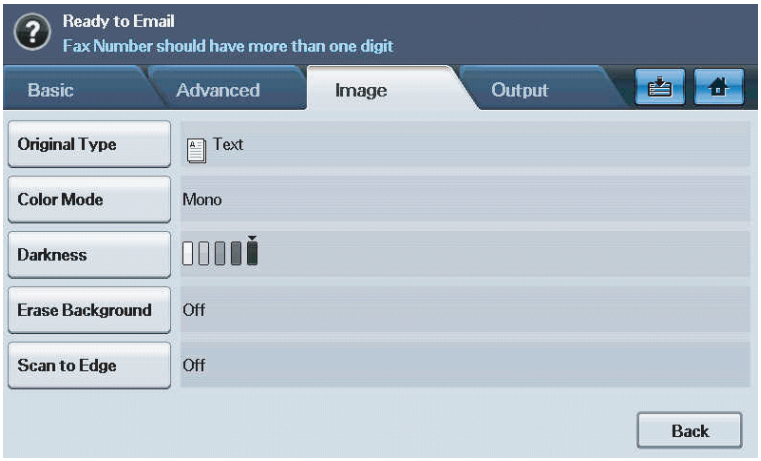
- SMB: Sends the scanned file to SMB. Press SMB for that option.
- FTP: Sends the scanned file to FTP. Press FTP for that option.
- No.: Index number which you entered in SyncThru Web Service.
- Server: Alias name which you entered in SyncThru Web Service.
- Duplex: Selects whether the machine scans on one side of the paper (1 Sided), both sides of the paper (2 Sided), or both sides of paper but back is rotated 180 degrees (2 Sided, Rotate Side 2).
- Resolution: Selects the scanning resolution value.
- Back: Returns to the previous screen.
- Quality: Adjusts the display quality of the scan output.
- File Format: Selects the file format of the scan output.
- Scan Preset: Automatically changes some scan options such as file format, resolution, and more. You can adjust options to fit each specific purpose.
- Back: Returns to the previous screen.

Advanced tab



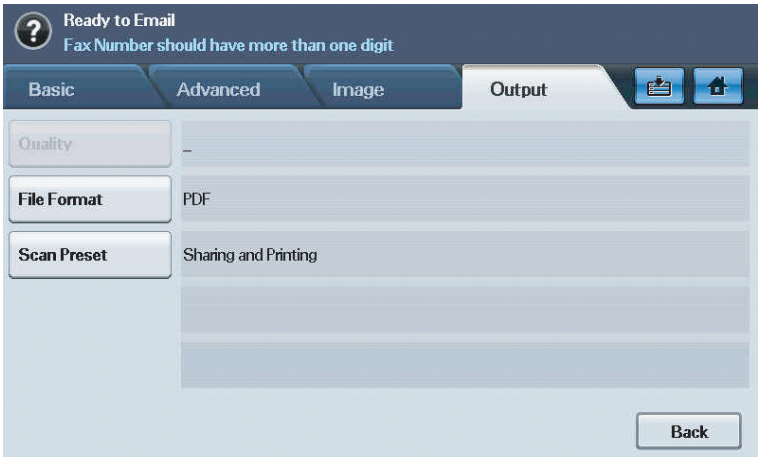
- Original Size: Sets the originals to a specific fixed size. • Back: Returns to the previous screen.

Image tab



- Original Type: Selects whether the original is text or photo.
- Color Mode: Adjusts the color options of the scan output. If the original is color and you want to scan in color, press Color Mode.
- Darkness: Adjusts the degree of darkness of the scan output. Use left/right arrow to adjust the values.
- Erase Background: Erases backgrounds like paper patterns.
- Scan to Edge: Scans originals from edge-to-edge.
- Back: Returns to the previous screen.

Output tab



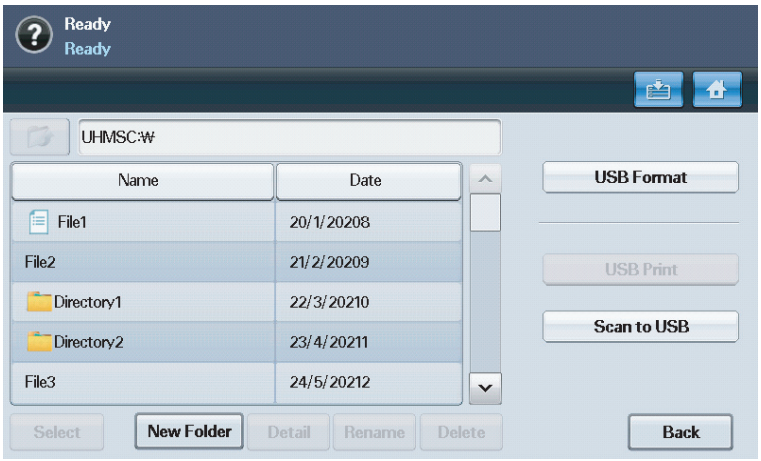
- Quality: Adjusts the display quality of the scan output.
- File Format: Selects the file format of the scan output.
- Scan Preset: Automatically changes some scan options such as file format, resolution, and more. You can adjust options to fit each specific purpose.
- Back: Returns to the previous screen.

4.1.6.5 Understanding the Stored Documents screen

- Public tab : Shows the job list of delay print and store print job.
- Secured tab : Shows the job list of secure print, secure receive, and secure store print job.
- User Name : Shows the user name who registered the job.
- File Name : Shows the job name which is registered as the job information. For the computer printing, the file name shows.
- Date : Shows the date of the job registered.
- Page : Shows the total page number of the job.
- Detail : Pops the separate message showing the basic job information with the file size, the paper size and the paper type, as well.
- Edit : Lets you to modify the file name.
- Delete : Deletes the selected list.
- Delete All : Deletes all the list.
- Print : Prints the selected list.

4.1.6.6 Understanding the USB screen

When USB memory is inserted into the USB memory port on your machine, USB icon shows on the display



- USB Format: You can delete image files stored on an USB memory device one by one or all at once by reformatting the device.
- USB Print: You can directly print files stored on an USB memory device. You can print TIFF, BMP, JPEG, PDF, and PRN files.
- Scan to USB: You can specify image size, file format, or color mode for each scanning to USB job.

4.1.7 Firmware Upgrade

• USB and Network port are used to F/W upgrade.
• Network applications (SWAS, SWS) can be used for network port upgrade.

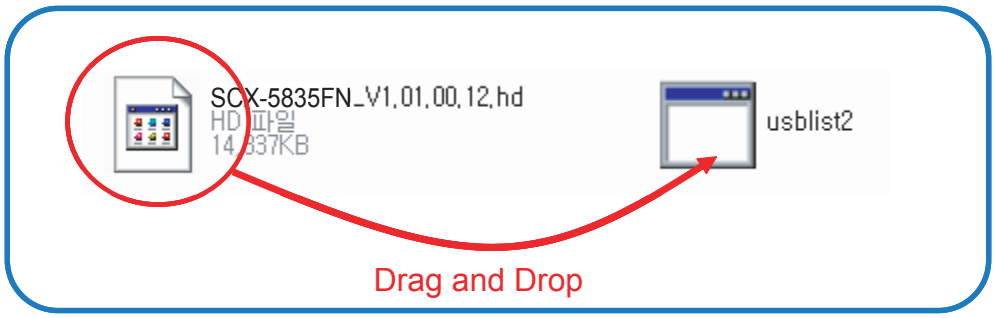
4.1.7.1. Using the common method

① Download the firmware file in the temporary folder. And unzip the file.

② Delete all current jobs from Job Status window

③ Connect USB cable in the machine (idle state)

④ Send firmware file(*.hd) by usblist2
- Drag the f/w file and Drop down on the usbprn2.exe. And then f/w update will be started automatically.

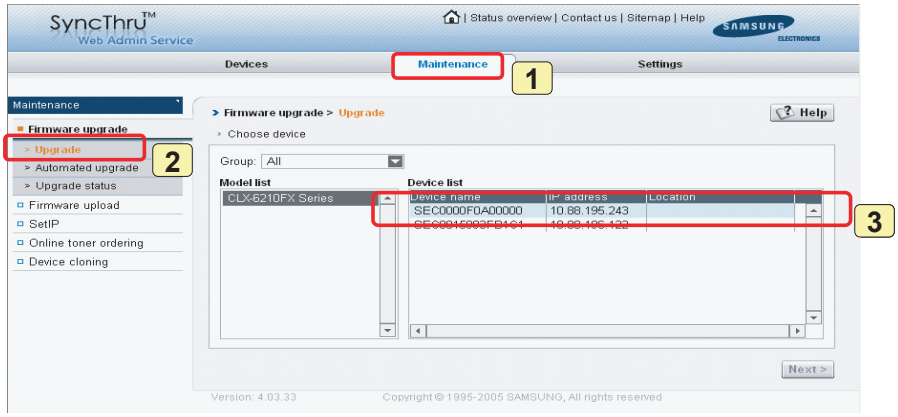


⑤ Please wait until end reboot.

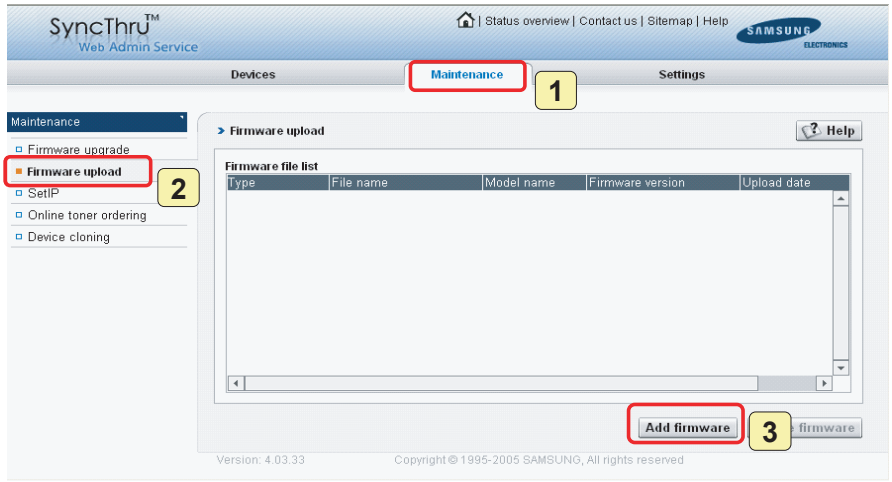
4.1.7.2. F/W upgrade using SWAS (SyncThru Web Admin Service)

- Start the SWAS program.
  (Windows Start menu > Programs > Samsung Netowork Printer Utilities > SyncThru Web Admin Service)

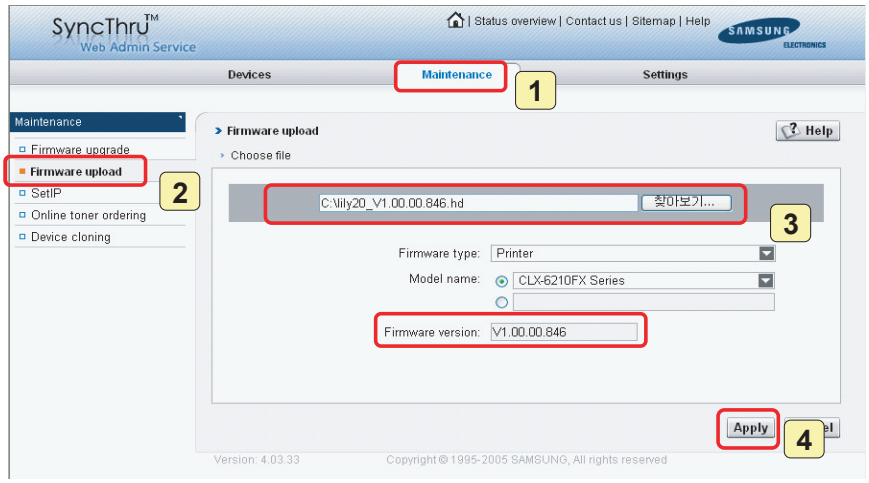
① Firmware Upgrade → Upgrade (check device using IP address)



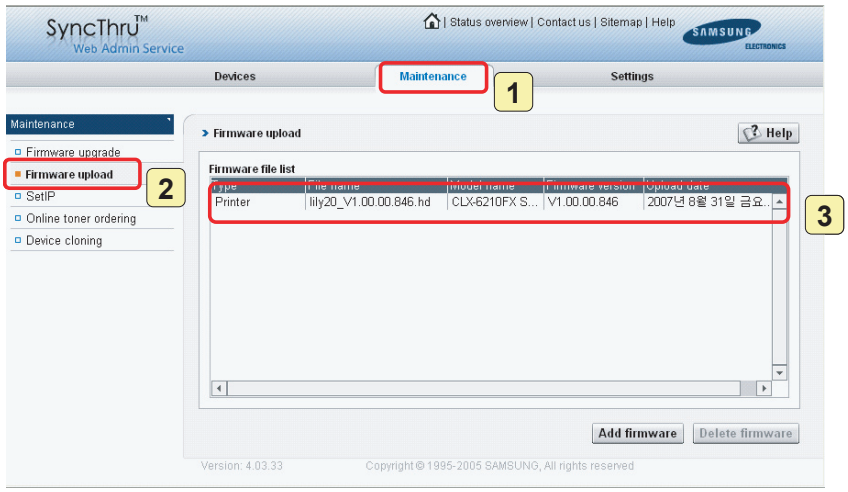
② Maintenance → Firmware upload (register firmware)



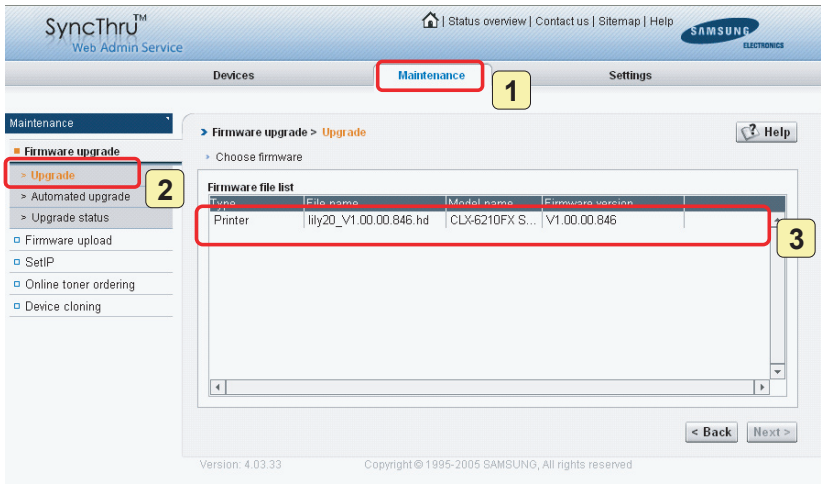
③ Maintenance → Firmware Upload (upload firmware)



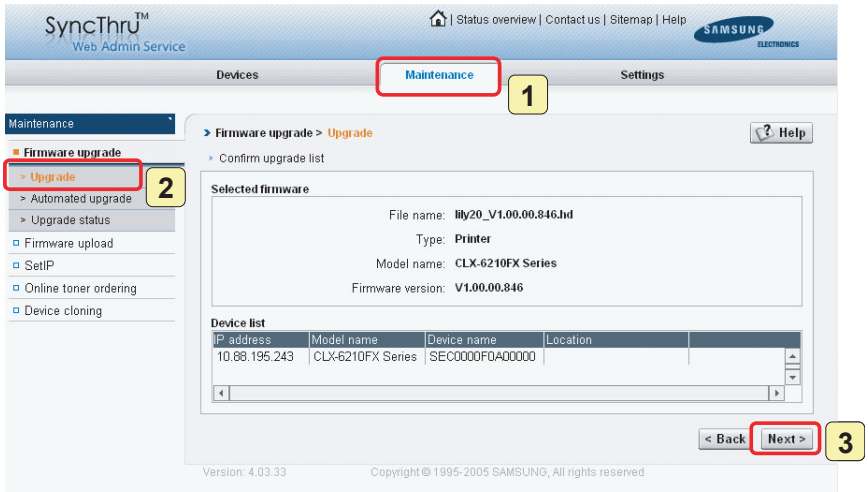
④ Maintenance → Firmware Upload (confirm uploaded firmware)



⑤ Maintenance → Firmware Upgrade → Upgrade (choose firmware)

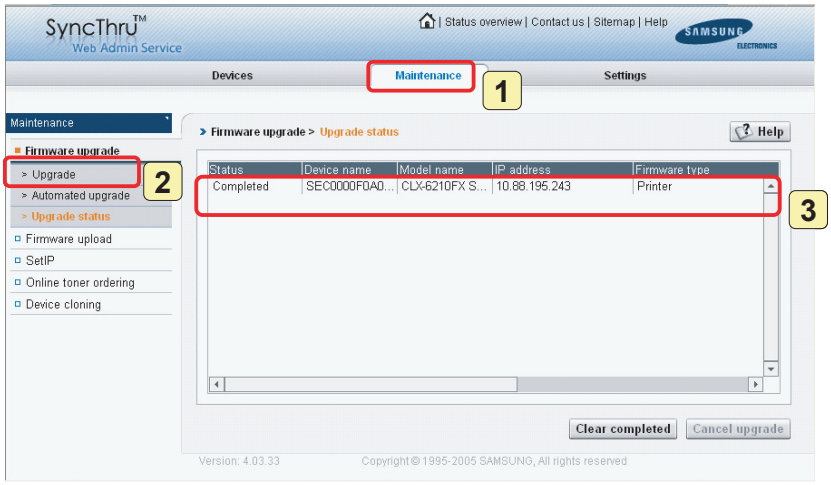


⑥ Maintenance → Firmware Upgrade → Upgrade (choose firmware)



⑦ Maintenance → Firmware Upgrade → Upgrade

⑧ Maintenance → Firmware Upgrade → Upgrade (Done)



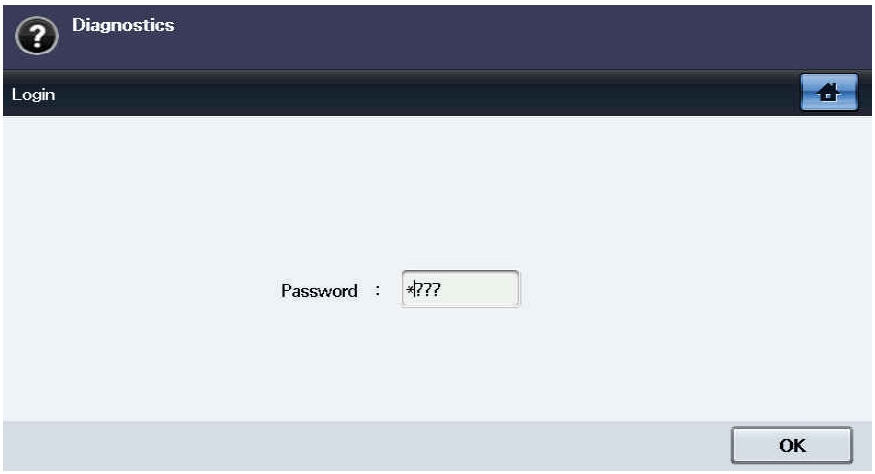
4.1.8 Diagnostics

4.1.8.1 Introduction

This document will capture the behavior specifications for the GUI Windows for Diagnostics. Each section of this document describes one feature with a step window image and script.
However, used window image is not fixed image from the specification point of view. Acquire detail information from script. Window image is just example image will be implemented.

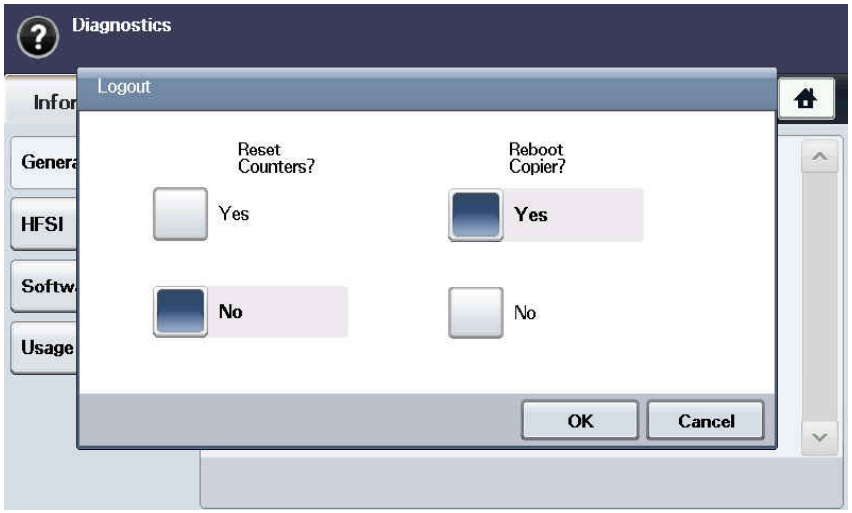
4.1.8.2 How to enter diagnostics mode

1. Press (1,2,3) key on dial pad simultaneously.
2. Enter password(1934).
3. Press 'OK' button.

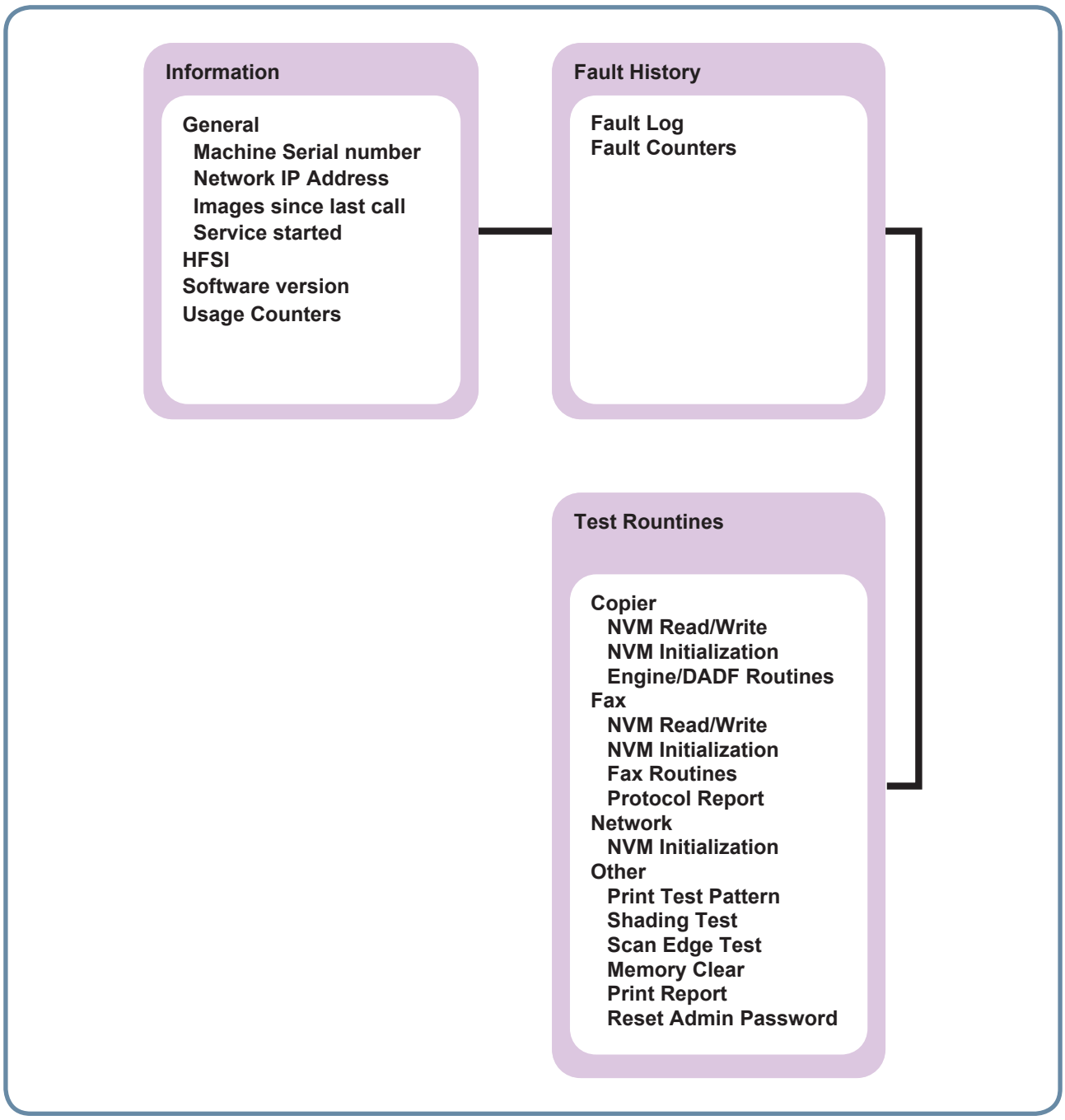


4.1.8.3 How to exit diagnostics mode

By pressing the Home button, exit Diagnostics mode.
When exit Diagnostics mode, a popup window shall display.
By default, Reset Counters is No, Reboot Copier is Yes.



4.1.8.4 Diagnostics Menu Map



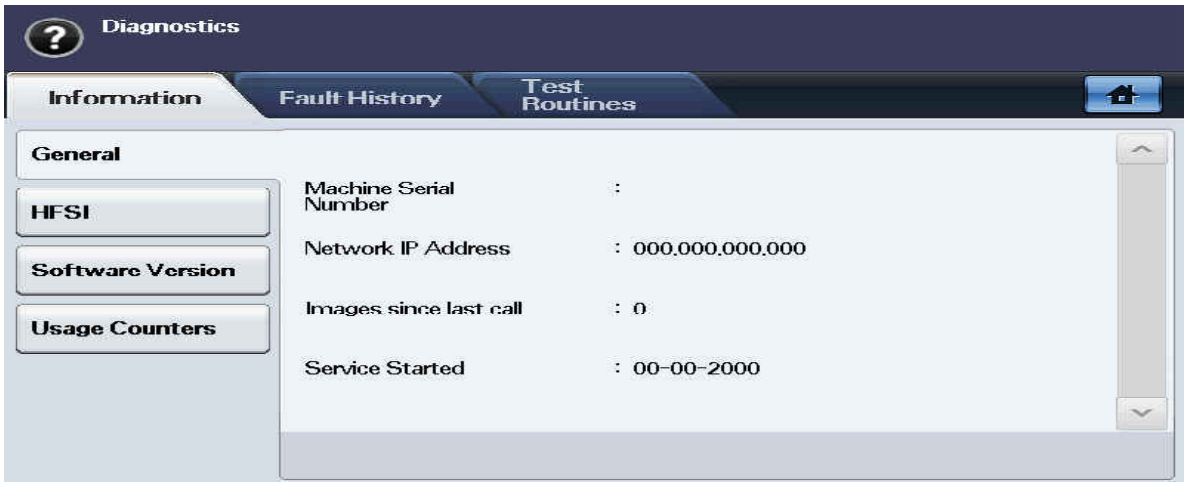
4.1.8.5 Information Tab

Information tab provides detail information of the machine.

General

• Diagnostics>Information>General

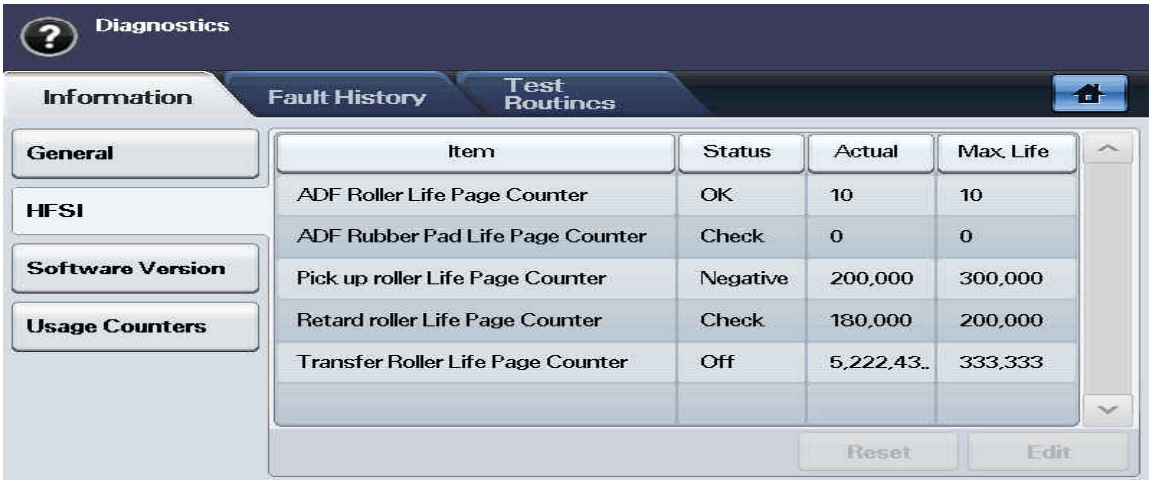
• When user selects General, OP displays Machine Serial Number, Network IP Address and Images since last call.



HFSI (High Frequency Service Items)

• Diagnostics>Information>HFSI

• When user selects General, OP displays the list of HFSI(High Frequency Service Items) read from the MCB.
In the list, there are " Item", "Status", "Actual", and "Max Life".



• User Behavior
- User can select one item in the list to reset the counter using “Reset” button or to edit the Max.Life and threshold value using “Edit” button.

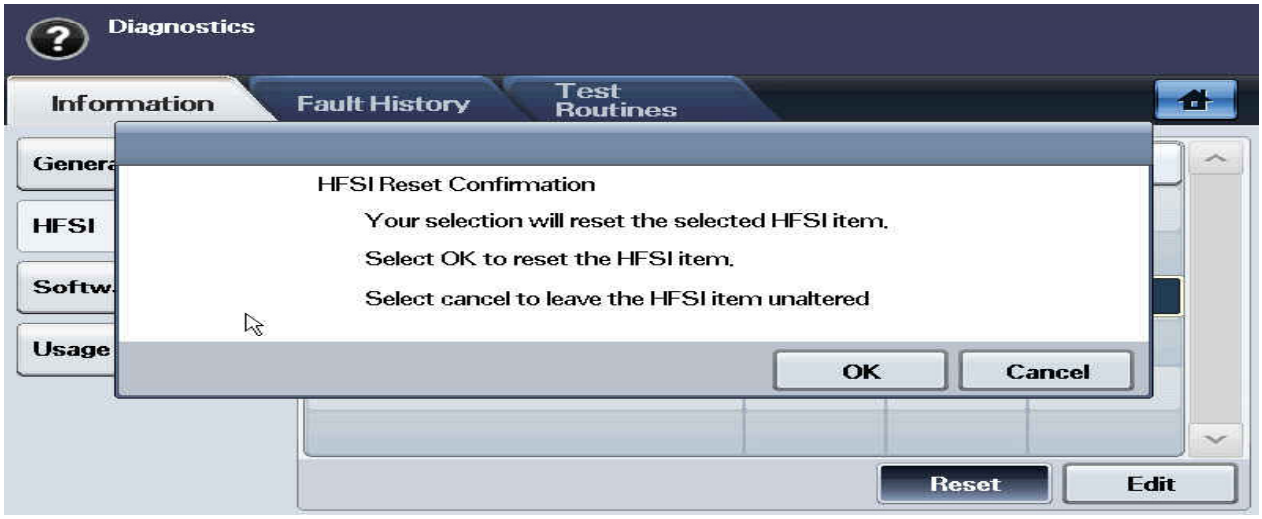
• Items in this column are:
DADF Roller / Rubber Pad Life Page
T1/T2/T3 P-up Roller Life Page
Retard Roller Life Page
Bypass Rubber Pad Life page
Transfer Roller Life Page
Fuser Roller / Fuser Unit Life Page
Heat Roller Life Page
Pressure Roller Life Page

• Status
- The possible values in this column are ‘OK’, ‘Check’, ‘Negative’ and ‘Off’.
- OK : Actual counter is smaller than the threshold value
- Check : Actual counter is bigger than threshold value but smaller than Max.Life
- Off : Actual counter exceeds Max.Life
- Negative : There is no counter to display. In this case, it shall display ‘-‘ in the Status and Max Life column.

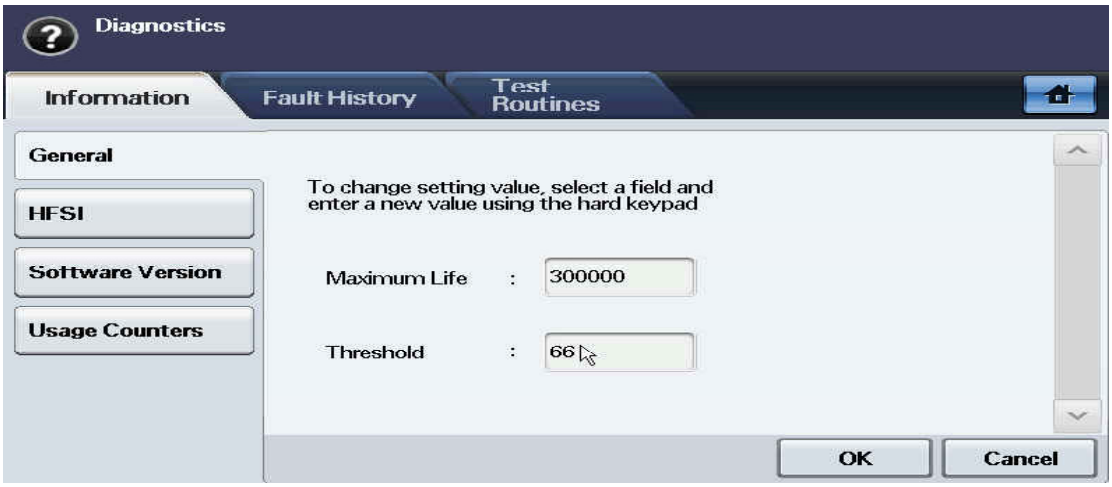
• Actual
- Values in this column are actual counts for HFSI usage

• Max. Life
Values in this column are maximum life limits set for HFSI.

• Reset
This button is used to reset the actual counter after replacing the HFSI unit.
This button is disabled before user select one item in the list and enabled once user select any of the items in the list.
Once user presses, a confirmation window shall display to user confirm again. The window is displayed as below.
If user confirms reset, it will reset the counter to 0.
If the counter of selected item is 0, ‘Reset’ button shall be disabled.



• Edit
"Edit" button is disabled until user select one item in the list.
Selecting "Edit" button causes edit window to be displayed.
There are two input filed for 'Maximum Life' and for 'Threshold'.



Each data field shall display default value or the last-saved value entered by the service engineer. The data field shall support the numeric characters of 0 to 9.
The hard keypad characters of '#', 'phone' and '*' are not supported and shall generate an invalid entry message if selected.
The hard keypad characters of 'c' shall delete all characters displayed within the selected data field. By selecting 'Cancel', window moves back to HSFI window without saving user's setting. By selecting 'OK' button, window moves back to HSFI window saving user's setting. Threshold value shall not be greater than Maximum Life.

Software Version

• Diagnostics>Information>Software Version
• When user selects Software version, OP displays the version of the Main Controller, Image Output Terminal, User Interface, Network Controller, Document Feeder, Tray 2 Firmware, Tray 3 Firmware

Usage Counter

• Diagnostics>Information>Usage Counter
• When user selects Usage Counter, OP displays the amount of the Items shown below.

- Total Impressions
- Black Impressions
- Black Copied Impressions
- Black Printed Impressions
- Sheets
- Copied Sheets
- Black Copied Sheets
- Printed Sheets
- Black Printed Sheets
- 2 Sided Sheets
- Copied 2 Sided Sheets
- Black Copied 2 Sided Sheets
- Printed 2 Sided Sheets
- Black Printed 2 Sided Sheets
- Fax Images Received
- Images Sent
- Server Fax Images Sent
- Network Scanning Images Sent
- Email Images Sent
- Maintenance Impressions
- Black Maintenance Impressions
- Known Jams in the IOT
- Known Jams in Finishing Device(s)
- Attempted Sheet Feeds from Internal trays
- Actual sheet feeds from Internal trays
- Normal Level Power On Hours
- Power Save Hours
- Attempted Original Sheet Feeds in the DADF

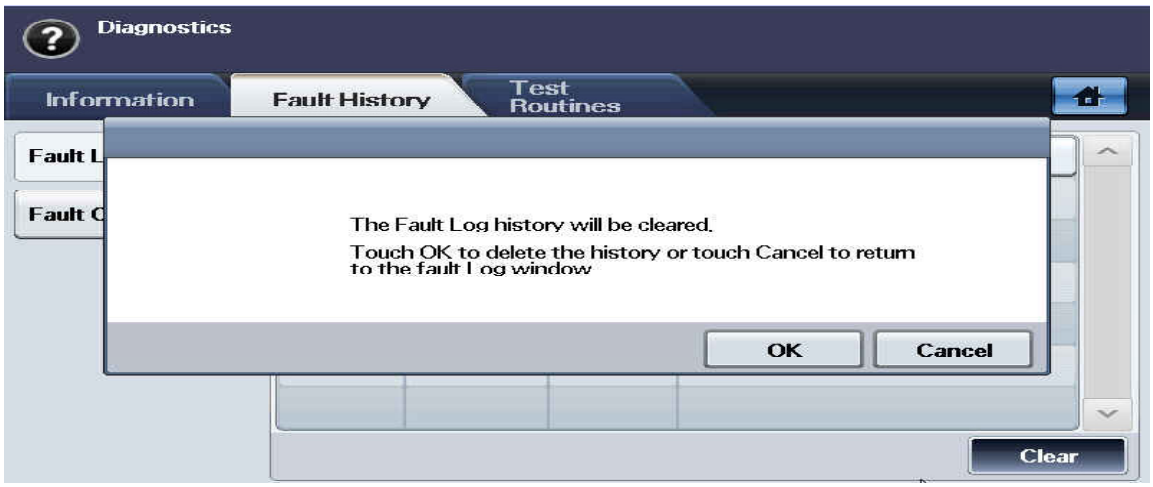
4.1.8.6 Fault History Tab

Fault History provides an error information occurred.

Fault Log

• Diagnostics>Fault History>Fault Log
• Fault log window shall display errors occurred while the product was operating.

• Diagnostics>Fault History>Fault Log>Clear
• When selecting “Clear” button, Pop-up will be displayed. If you want to delete the Fault history, touch the “OK” button.

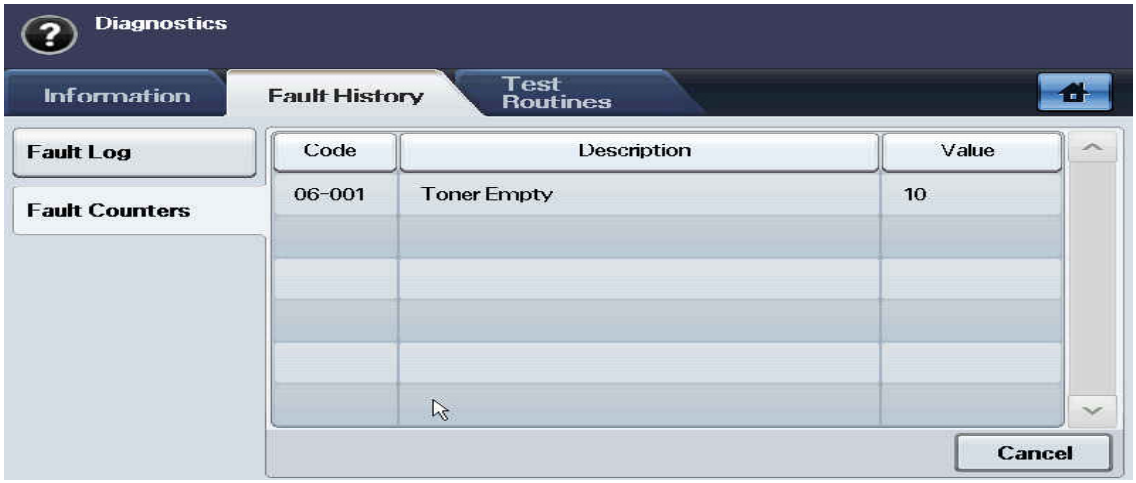


Fault Counters

• Diagnostics>Fault History>Fault Counters
• Fault counters window displays Fault group with number and name.
They are

- 01 Feeder
- 02 Fuser
- 03 Motor Fan
- 04 LSU
- 05 Option Interface
- 06 CRU
- 07 Finisher
- 08 DADF

User shall select one item in the list at a time and multiple selection shall not supported. User can select 'Non Zero' or 'All'. By default, 'Non Zero' shall be selected.
When press 'OK', Fault Counters Detail Window shall be displayed.



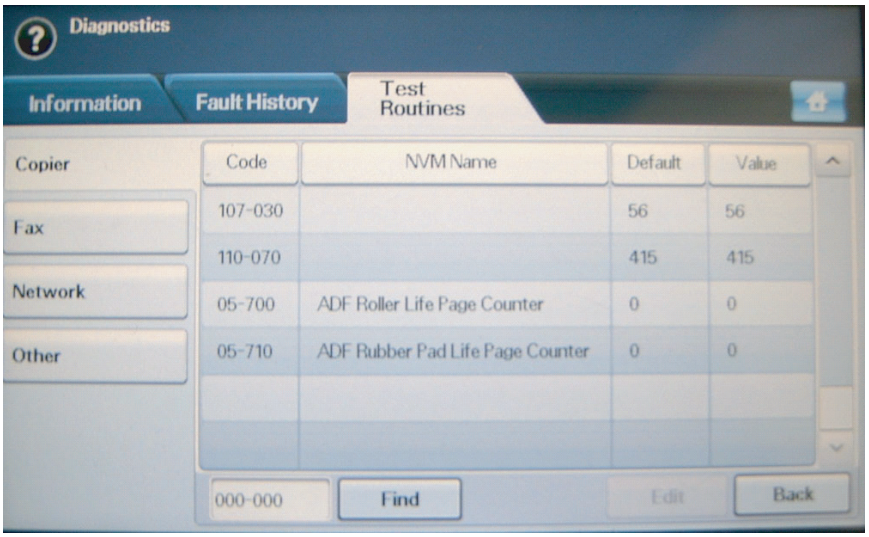
Fault Counters Detail window shall display Fault code, description and value (counter) among the selected Fault Group. Items of displayed Fault codes are different based on the selection of 'Non Zero' or 'All'. When selected 'Non Zero', Fault codes in the selected Fault Group having non zero counter shall be displayed. When selected 'All', all Fault codes in the selected Fault Group shall be displayed. Display order of Fault code is upward.

4.1.8.7 Test Routines Tab

4.1.8.7(a) Copier

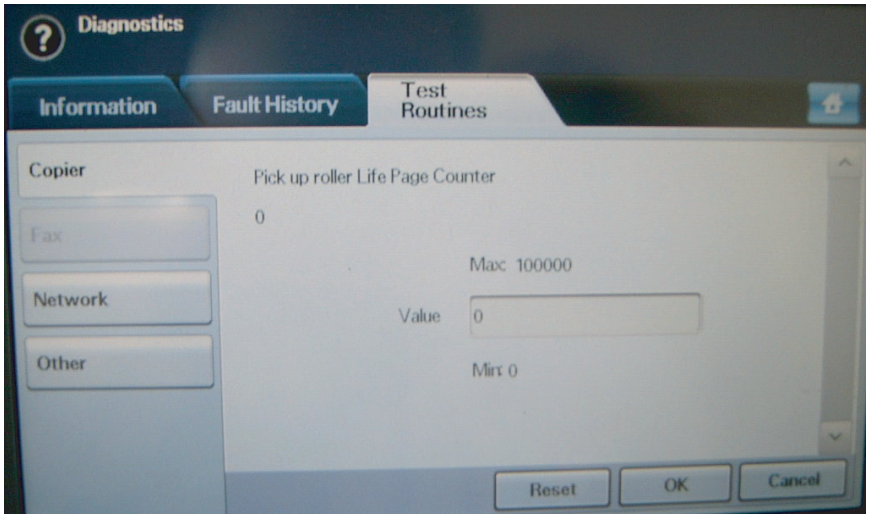
NVM Read/Write

• Diagnostics>Test Routines>Copier>NVM Read/Write



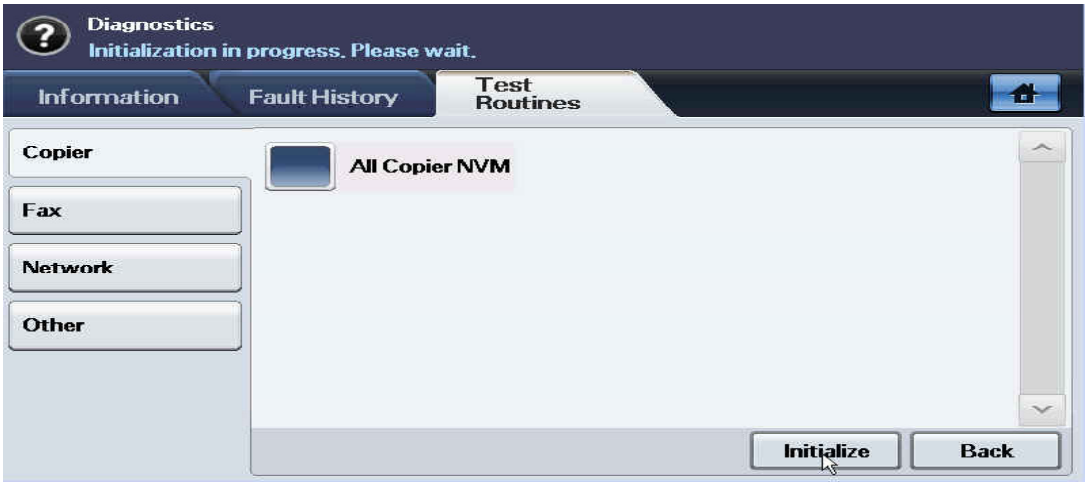
"Edit" button shall be disabled until any NVM item is selected.
"Edit" button shall be disabled when read only NVM is selected. Search edit box has 00-000 as a default. User shall input the whole number to find a specific NVM by pressing Find button. (Refer to NVM Read/Write table) If matching NVM is found, the page including the specified NVM shall be displayed and the NVM is shown as selected. If matching NVM is not found, error message such as "Invalid NVM number" shall be displayed on the status area and search edit box displays default number.

• Diagnostics>Test Routines>Copier>NVM Read/Write>Edit

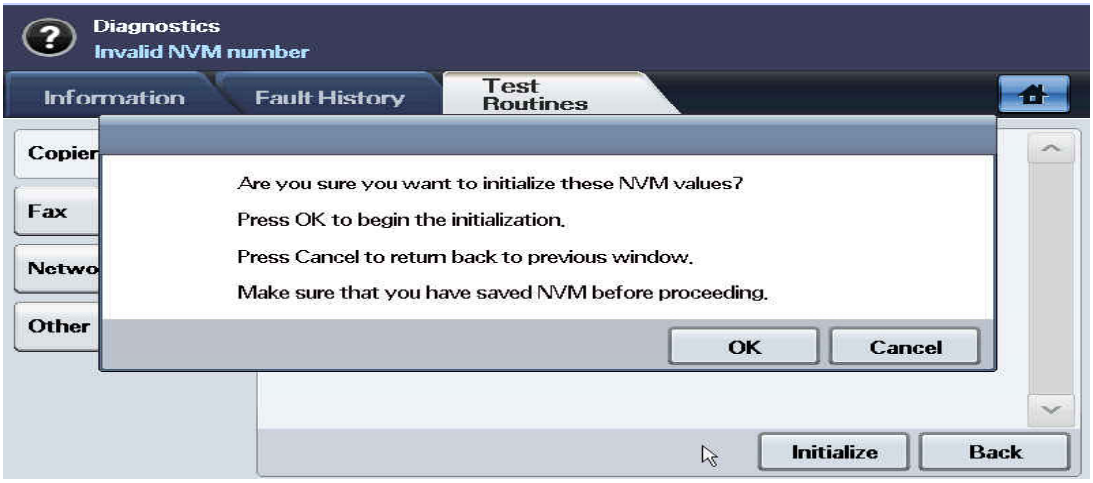


NVM Initialization

• Diagnostics>Test Routines>Copier>NVM Initialization
• By default, none of items is selected and Initialize button shall be disabled.
There shall be Back button.



• Diagnostics>Test Routines>Copier>NVM Initialization>Initialize



If you want to initialize the NVM values, press OK button.
When press OK button, SR shall show the initialization progress status and result.
When the result is get, pop up window shall be disappeared.
-> When the result is finished, the pop up window will disappear.

Engine/DADF Test Routines

• Diagnostics>Test Routines>Copier>Engine/DADF Test Routines.

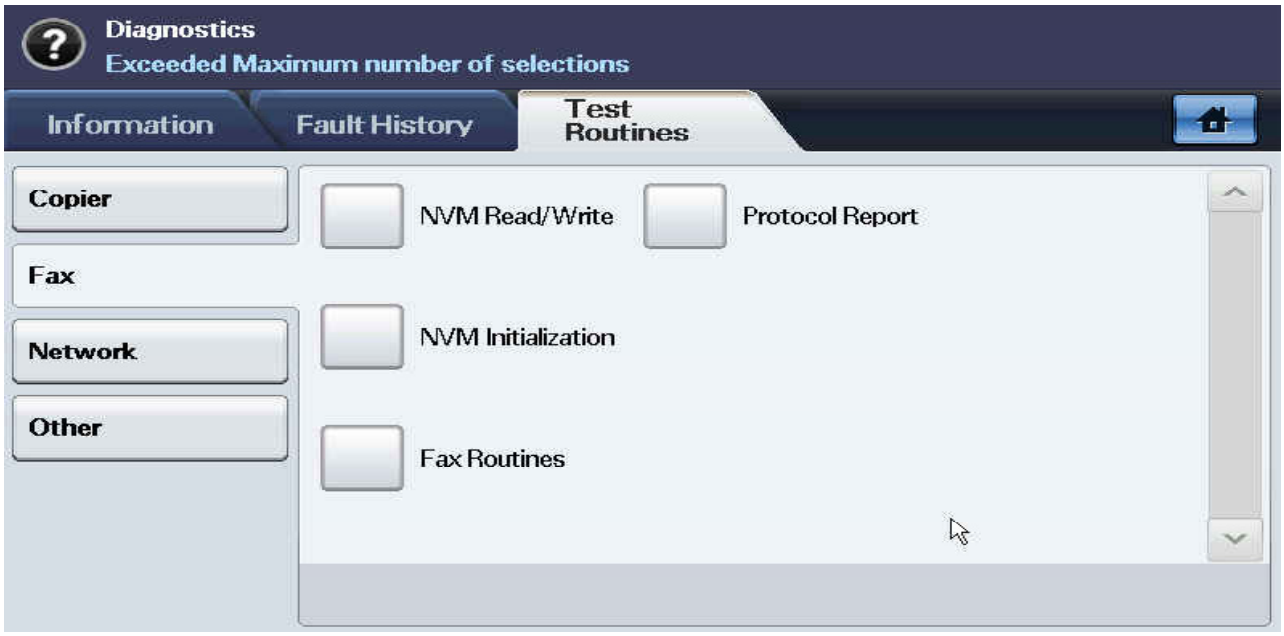
When exit this window, OP shall send exit command. (CMD_COPY_COMP_EXITMODE)
By default, all Test routines will be displayed.
By default, search edit box has 00 .
OK/Reset button shall be disabled until any test routine is selected.
Maximum number of selection is 3.
Reset will deselect all selected test routines.
User select test routine by touching the row and deselect touching it again.
User input chain number in search edit box and only all test routines in the chain shall be displayed.

By default, Start/Stop/Stop All shall be disabled.
Start button shall be enabled when selected item is not running.
Multiple selection shall not be supported.
Stop shall be enabled only when the selected item is running.
Stop All shall be enabled when there is any running test item.
Back button shall be disable when there is any running test item.

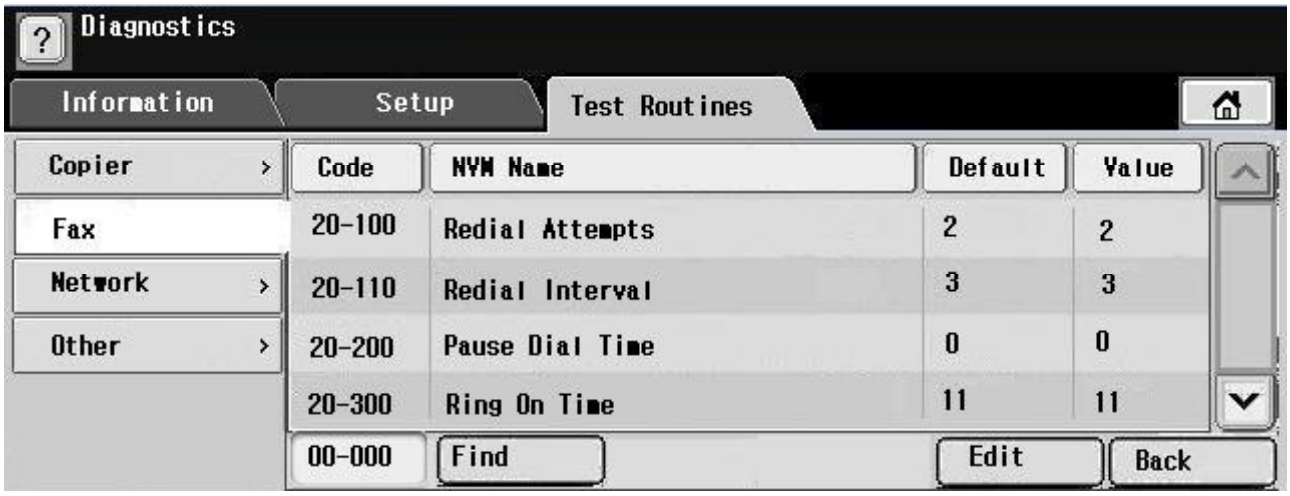
4.1.8.7(b) Fax

NVM Read/Write

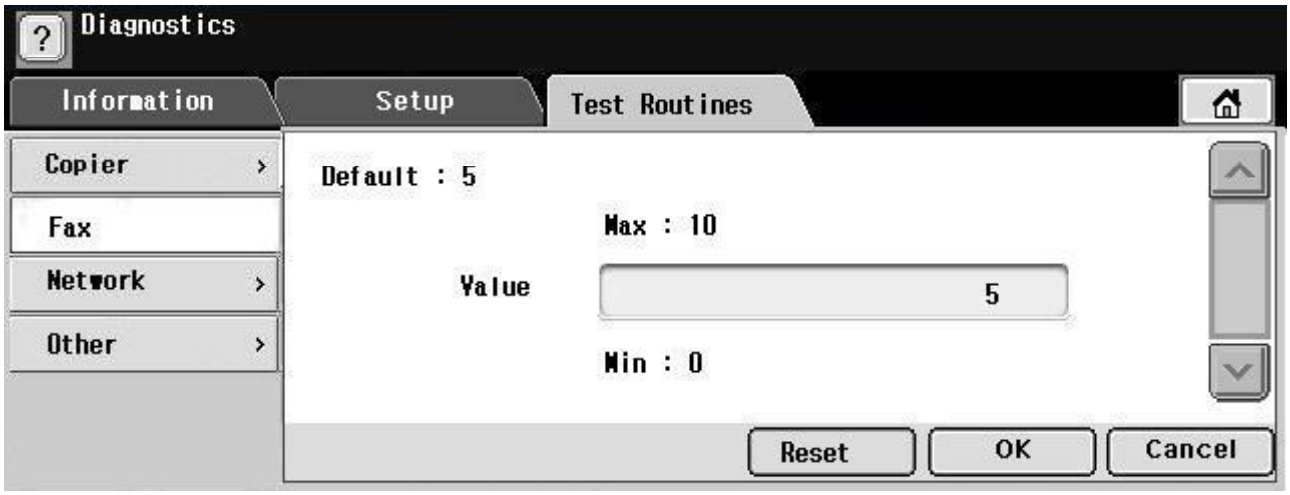
• Diagnostics>Test Routines>Fax>NVM Read/Write



For the behavior, refer to Copier-NVM Read/Write.



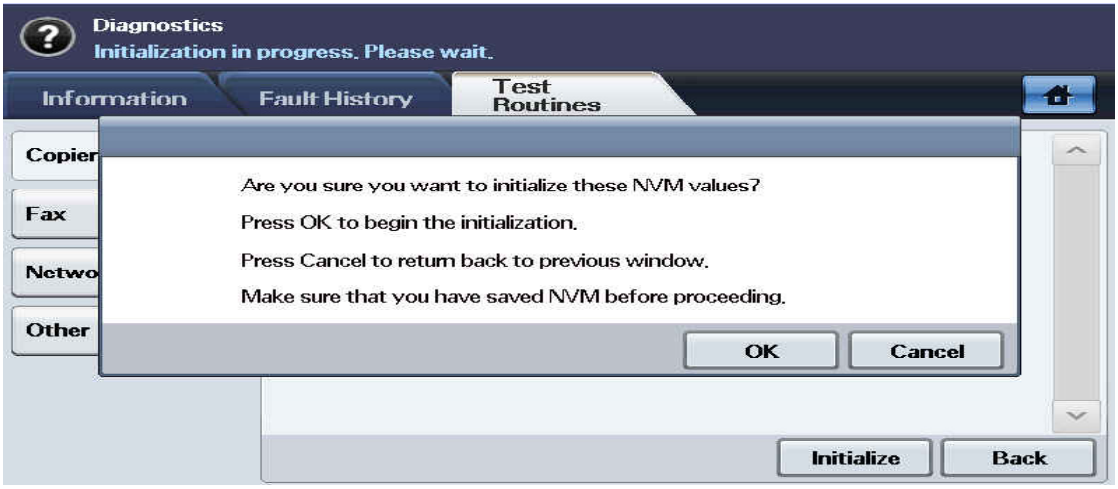
For the behavior, refer to Copier-NVM Read/Write-Edit.



NVM Initialization

• Diagnostics>Test Routines>Fax>NVM Initialization
• By default, none of items is selected and Initialize button shall be disabled. There shall be Back button.

• Diagnostics>Test Routines>Fax>NVM Initialization>Initialize



If you want to initialize the NVM values, press OK button.
When press OK button, SR shall show the initialization progress status and result.
When the result is get, pop up window shall be disappeared.

Protocol Report

• Diagnostics>Test Routines>Fax>Protocol Report
• When selecting Protocol Report, the sub-item will be displayed. By pressing the print, you can print the protocol report.

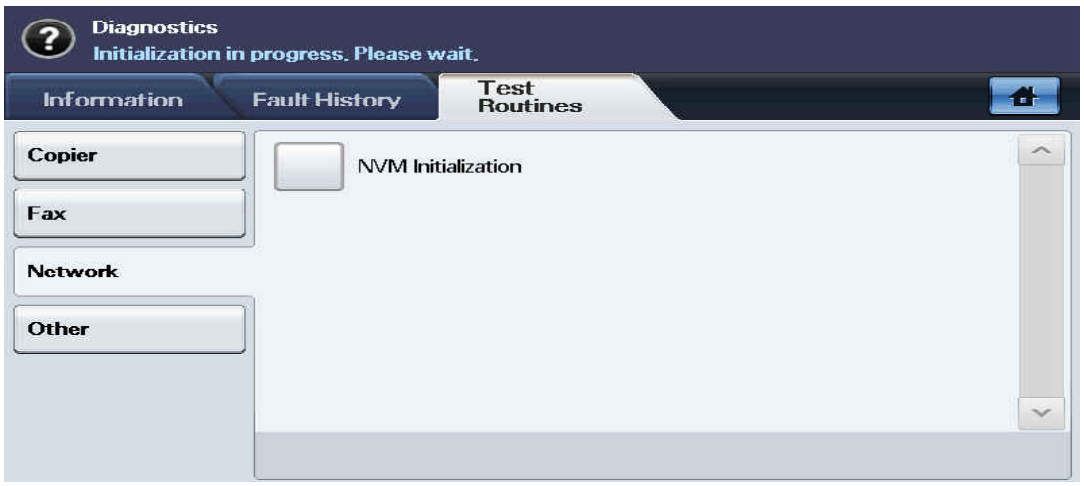
Fax Routines

• Diagnostics>Test Routines>Fax> Fax Routines
• For the behavior, refer to Engine/DADF Test Routines

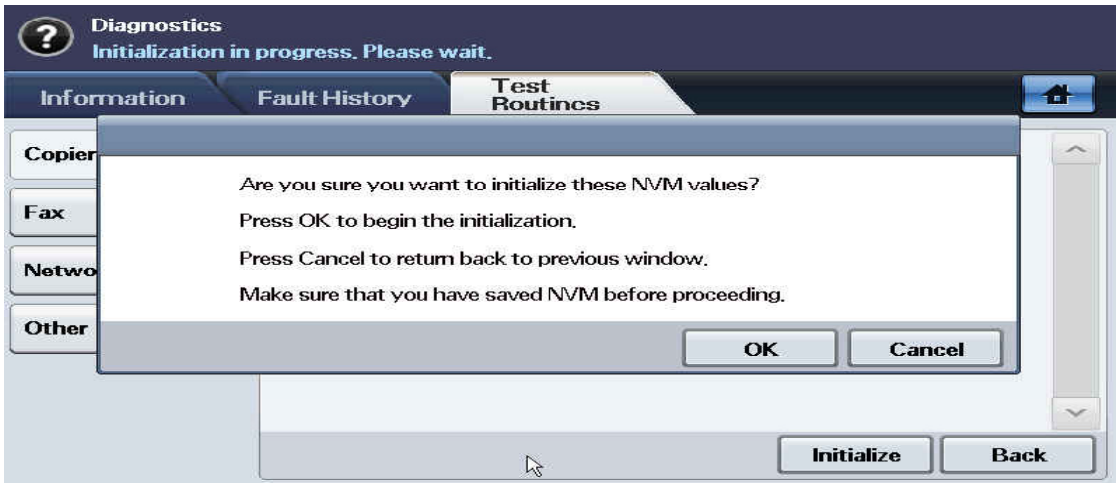
4.1.8.7(c) Network

NVM Initialization

• Diagnostics>Test Routines>Network>NVM Initialization



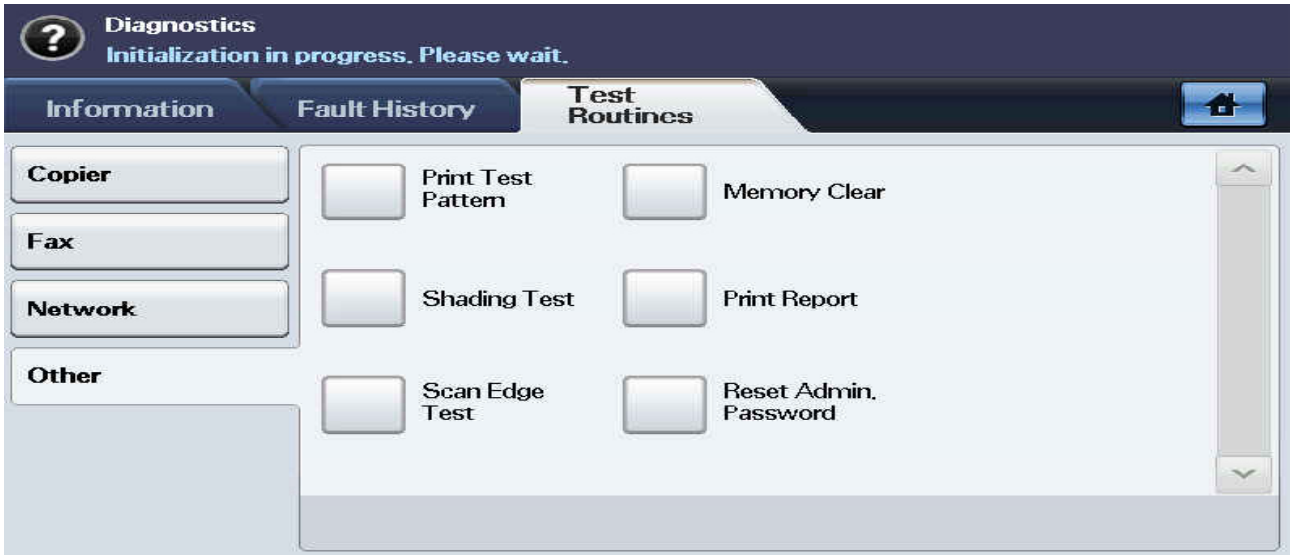
• Diagnostics>Test Routines>Network>NVM Initialization>Initialize



If you want to initialize the NVM values, press OK button.
When press OK button, SR shall show the initialization progress status and result.
When the result is get, pop up window shall be disappeared.

4.1.8.7(d) Other

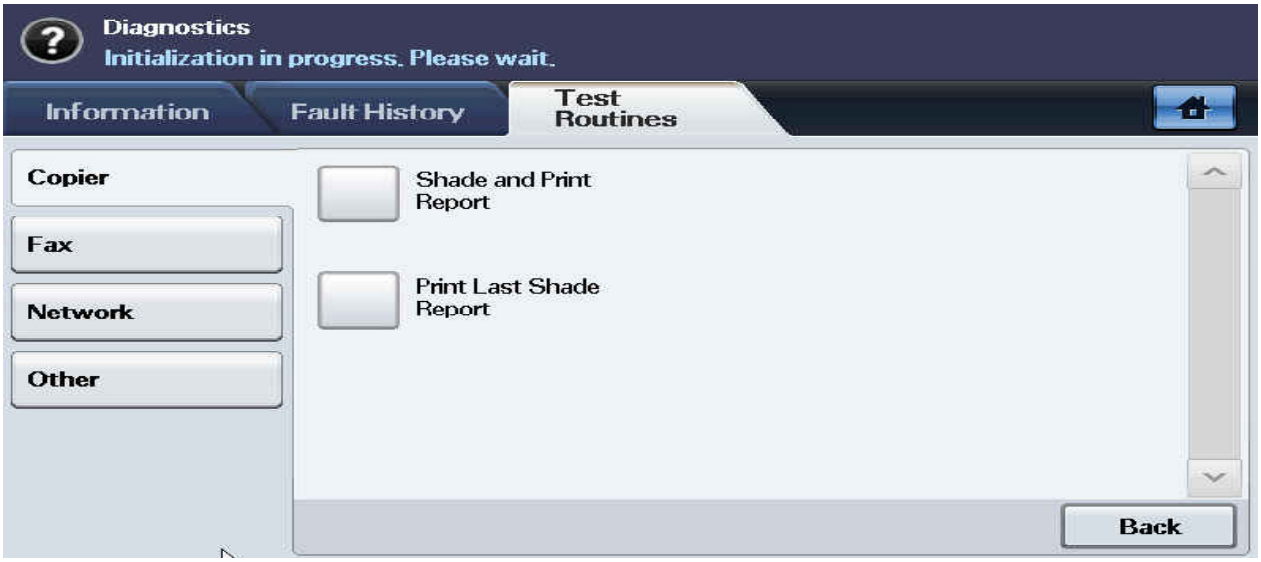
• Diagnostics>Test Routines>Other



• Diagnostics>Test Routines>Other>Print Test Pattern

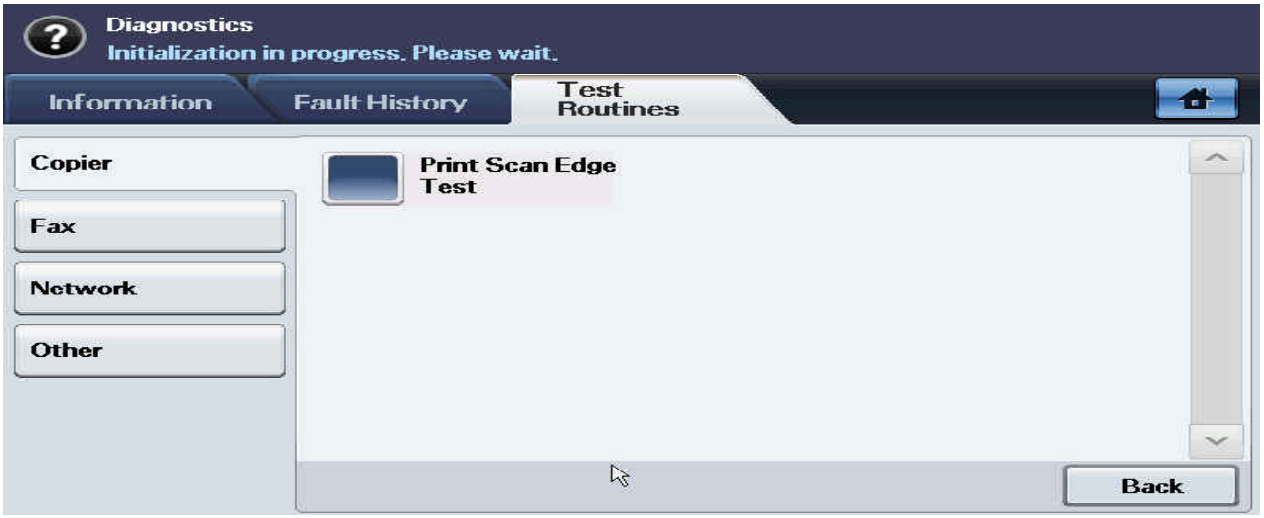
You can print the test pattern by pressing the start test button.
By default, Test Pattern number shall be 1.
You can select paper source by selecting tray of the image.
You can select simplex/duplex printing option by selecting 1 sided /2 sided button.

• Diagnostics>Test Routines>Other>Shading Test



The function is used to set the optimum scan quality determined by the specific characteristics of the CCD (Charge Coupled Device). If copy image quality is poor perform this function to check the condition of the CCD unit.

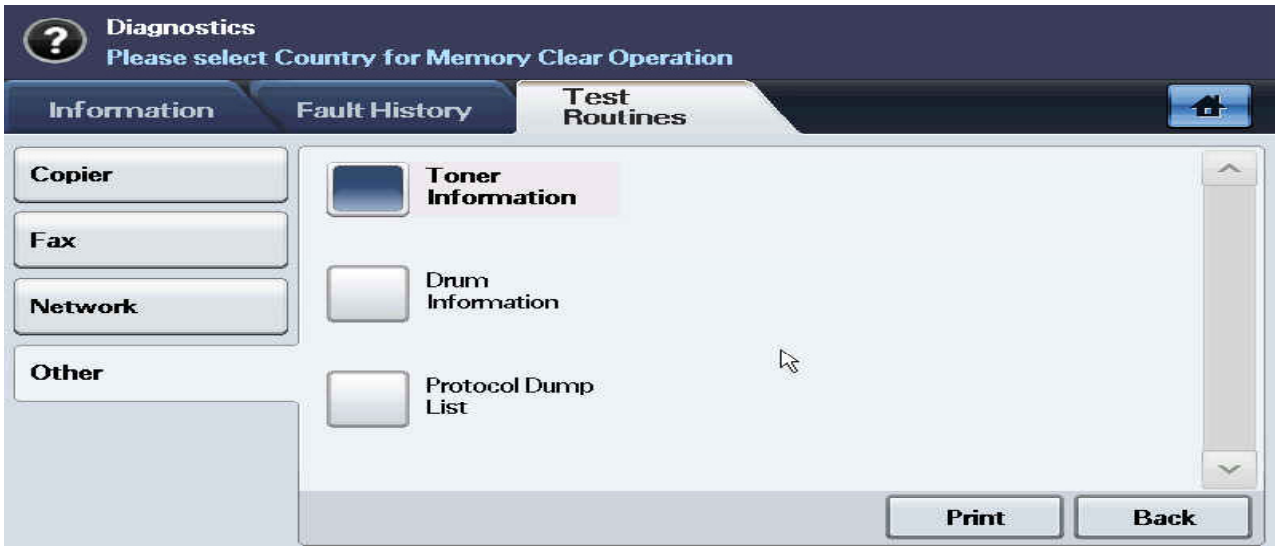
• Diagnostics>Test Routines>Other>Scan Edge Test



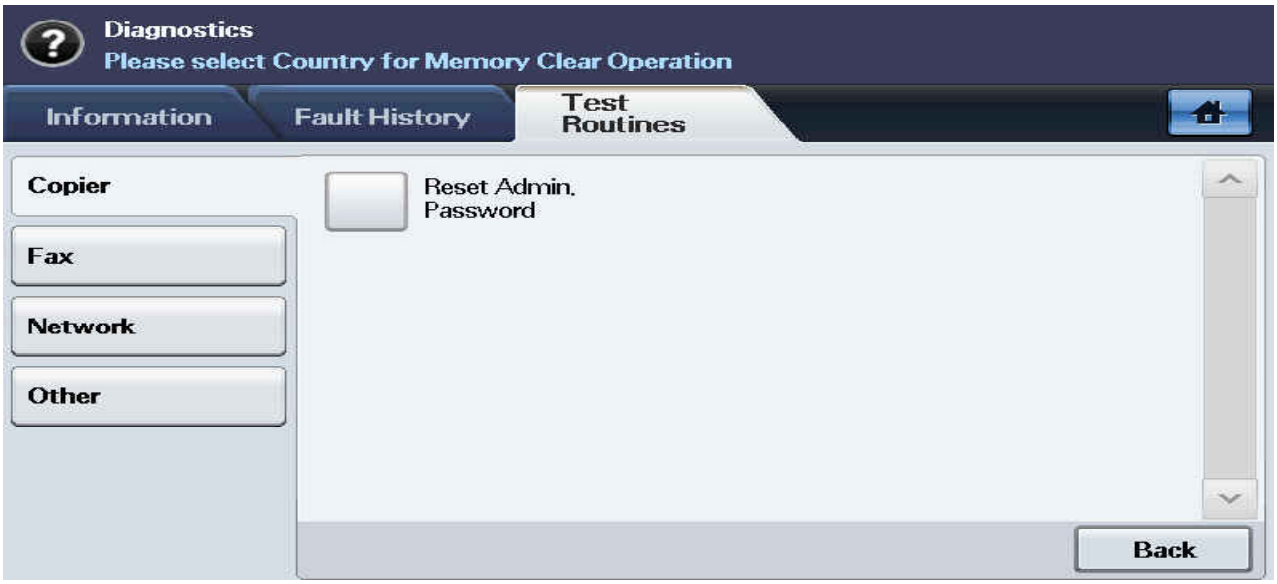
• Diagnostics>Test Routines>Other>Memory Clear

The function resets the system to factory default settings.
This function is used to reset the system to the initial value. All the values are returned to the default values, and all the information which was set by the user will be erased.
When select memory clear, user can select the country.

• Diagnostics>Test Routines>Other>Print Report



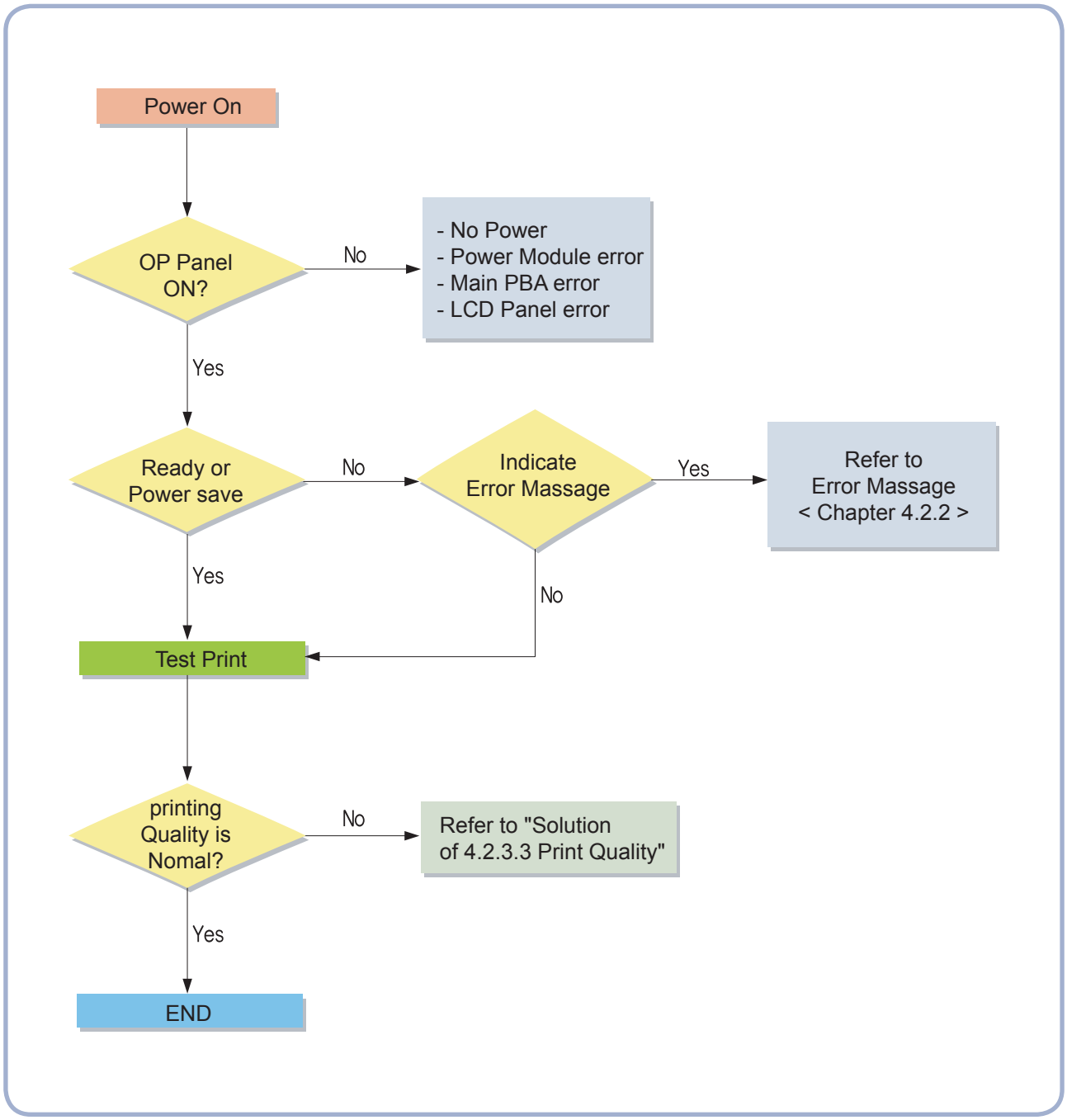
• Diagnostics>Test Routines>Other>Reset Admin. password



4.2 Troubleshooting

4.2.1 Procedure of Checking the Symptoms

Before attempting to repair the printer first obtain a detailed description of the problem from the customer.



4.2.2 USING THE SMART PANEL PROGRAM

Smart Panel is a program that monitors and informs you of the machine status, and allows you to customize the machine's settings. Smart Panel is installed automatically when you install the machine software.
To use this program, you need the following:

- Windows. Check for windows operating system(s) compatible with your machine.
- Mac OS X 10.3 or higher
- Linux. Check for Linux systems that are compatible with your machine.
- Internet Explorer version 5.0 or higher for flash animation in HTML Help.

Understanding Smart Panel

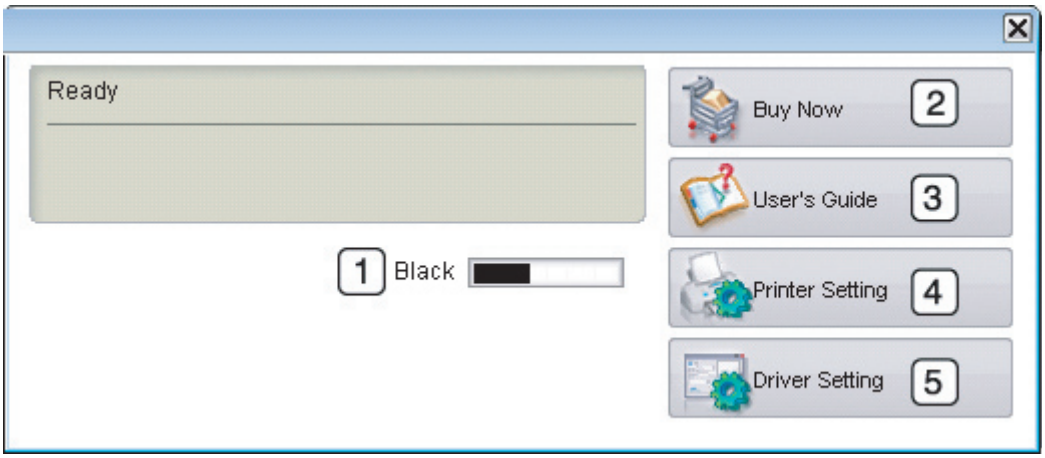
If an error occurs while printing, Smart Panel appears automatically, showing the error.You can also launch Smart Panel manually. Double-click the Smart Panel icon on the Windows task bar (in Windows), or Notification Area (in Linux). You can also click it on the status bar (in Mac OS X).

Windows		Double-click this icon in Windows.
Macintosh		Click this icon in Mac OS X.
Linux		Click this icon in Linux.

If you are a Windows user, from the Start menu, select **Programs or All Programs > your printer driver name > Smart Panel.**

- If you have already installed more than one Samsung machine, first select the correct machine model you want in order to access the corresponding Smart Panel.
- Right-click (in Windows or Linux) or click (in Mac OS X) the Smart Panel icon and select your machine.
- The Smart Panel window and its contents shown in this user's guide may differ depending on the machine or operating system in use.

The Smart Panel program displays the current status of the machine, the level of toner remaining in the toner cartridge(s), and various other types of information. You can also change settings.



1	Toner Level	View the level of toner remaining in the toner cartridge(s). The machine and the number of toner cartridge(s) shown in the above window may differ depending on the machine in use. Some machines do not have this feature.
2	Buy Now	Order replacement toner cartridge(s) online.
3	User's Guide	This button changes to Troubleshooting Guide when error occurs. You can directly open troubleshooting section in the user's guide.
4	Printer setting	Configure various machine settings in the Printer Settings Utility window. Some machines do not have this feature. If you connect your machine to a network, the SyncThru™ Web Service window appears instead of the Printer Settings Utility window.
5	Driver Setting	Set all of the machine options you need in the Printer Preferences window. This feature is available only for Windows

Opening the Troubleshooting Guide

Find solutions for error status problems by using the troubleshooting guide. Right-click (in Windows or Linux) or click (in Mac OS X) the Smart Panel icon and select Troubleshooting Guide.

Using Printer Settings Utility

Using the Printer Settings Utility, you can configure and check print settings.

1. Right-click (in Windows or Linux) or click (in Mac OS X) the Smart Panel icon and select Printer Setting.
2. Change the settings.
3. To send the changes to the machine, click the Apply.

If your machine is connected to a network, the SyncThruTM Web Service window appears instead of the Printer Settings Utility window.

Using On screen Help File

For more information about Printer Settings Utility, click

4.2.3 Error Message

Messages appear on the control panel display to indicate the machine's status or errors. Refer to the tables below to understand the messages' and their meaning, and correct the problem, if necessary. Messages and their meanings are listed in alphabetical order.
[zzz] indicates the error code. When you contact the service center, this error code help to handle the problem.

Message	Description	Suggested solutions
Fax memory is almost full. Print or remove received fax Job./ Fax memory is full. Print or remove received fax Job.	There is no more available fax memory. No more fax data can be received.	Delete the received fax data in the memory to secure memory.
Fuser error: [zzz]. Please turn off then on	1. At warm up, the temperature keep up the lower temperature for regular time. 2. In case that the temperature has not reached warm up temperature after warm-up time. 3. At ready, Less than target temperature and for more than 10 sec. 4. At printing, Less than printing Ref. temp and for more than 10 sec.	1. Check the Thermostat. If it is defective, replace it. 2. Check the Lamp. If it is defective , replace it. 3. Check the fuser connector. Reconnect it. 4. In case of printer input voltage lower than standard voltage. 5. Check the Thermistor. 6. If the Heat On signal is not occurred from Power supply, replace it.
Fuser unit is not installed correctly. Install it.	The fuser unit is not installed or correctly	Disassemble and reassemble the fuser unit.
LSU error: [zzz]. Please turn off then on	1. LSU motor does not operate. 2. After LD on, the Laser beam detect signal is not occurred or irregular. 3. LSU motor does not operate or the drive signal is abnormal.	* Case 1,3 : After checking the LSU motor rotation noise, check the motor signal. * Case 2 : 1. Check the Beam Detecht signal. If there is a BD signal, replace the Main board. If or not, check the LD contol signal. 2. Check the LD Power is normal. 3. If it is normal, check the light receving part.
Original paper jam in front of scanner duplex path	Paper has jammed during duplex printing in the DADF.	Remove the jammed paper in DADF
Original paper jam in front of scanner	The originals are jammed in DADF	Remove the jammed paper in DADF

Message	Description	Suggested solutions
Original paper jam inside of scanner duplex path	1. The lead edge of the document failed to actuate the reverse stack sensor within the correct time after actuating the gate sensor. 2. The edge of the document failed to actuate the reverse stack sensor.	Open the DADF cover and remove the jammmed paper
Original paper jam inside of scanner	The lead edge of the document failed to actuate the gate sensor within the correct time after actuating the scan sensor. When the machine is on, jammed paper is detected in the DADF.	Remove the jammed paper in DADF
Original paper jam while reversing paper in scanner	The lead edge of the document failed to actuate the duplex sensor within the correct time when the document was fed the wrong way.	Remove the jammed paper in DADF
Paper Jam at the bottom of duplex path	Paper has jammed during duplex printing.	1. Open the side door and remove the jammed paper. 2. If there is not jammed paper but the error message is occurred, check the duplex sensor. (Component Test)
Paper Jam at the top of duplex path	Paper has jammed during duplex printing.	1. Open the side door and remove the jammed paper. 2. If there is not jammed paper but the error message is occurred, check the duplex sensor. (Component Test)
Paper Jam in exit area	Paper has jammed in the fuser area.	1. Open the Side door and remove the jammed paper. 2. If there is not jammed paper but the error message is occurred, check the Exit sensor. (Component Test ->Sensor Read -> Ex value)
Paper Jam in MP tray	Paper misfed from multi-purpose tray.	1. If pick up roller does not rotate , check the pick up clutch. 2. If Pickup roller is rotating but the paper is not feeding, replace the pick up rubber. 3. Check the feed sensor. If it is defective, replace it.

Message	Description	Suggested solutions
Paper Jam in tray1	Paper has jammed in the feeding area of the tray.	1. If pick up roller does not rotate , check the pick up clutch. 2. If Pickup roller is rotating but the paper is not feeding, replace the pick up rubber. 3. Check the feed sensor. If it is defective, replace it.
Paper Jam in tray2	Paper has jammed in the feeding area of the tray.	1. Open the side door and Tray2 door and remove the jammed paper. 2. If there is not jammed paper but the error message is occured, check the Feed sensor or Hardware. 3. If the paper is feeding by rotating the pick up roller, check the clutch and clutch signal.
Paper Jam inside of duplex path	Paper has jammed during duplex printing.	1. Open the side door and remove the jammed paper. 2. If there is not jammed paper but the error message is occurred, check the duplex sensor. (Component Test)
Paper Jam inside of machine	Paper has jammed in the registration area	1. Open the Side door and remove the jammed paper. 2. If there is not jammed paper but the error is occured, Check the Registration Sensor (Component Test -> Sensor Read -> RG value) 3. If the paper stopped after actuating the Exit sensor, Check the Exit sensor (Component Test -> Sensor Read -> EX value)
Scanner locking switch is locked or another problem occurred.	The CCD lock has been locked.	1. Unlock the CCD Lock 2. Check the CCDM. Is is moving when scanning. Check the FFC cable. If there is defective, change it. 3. If the problem persists after removing the FFC cable, replace the DADF board. 4. Check the Scan-motor. If there is defective, change it.
Sensor Failure [zzz]. Call for service	There is a problem in the sensor signal	Find the defective sensor. And replace the new one.

Message	Description	Suggested solutions
Shake toner cartridge.	The toner supply is low.	Thoroughly roll the new cartridge five or six times to distribute the toner evenly inside the cartridge.
System error: #02-000. Please turn off then on	1. At warm up, the temperature is less than reference temperature for 20 sec. 2. Abnormal ADC has occurred. 3. ZeroCross Signal detect error has occurred.	1. In case of meaning 1, replace the Fuser unit. 2. In case of meaning 3, replace the Engine contol board or Fuser control board or SMPS.
System error: #02-003. Please turn off then on	The communication error of the MEGA88 Micom	1. Open the side cover and close it. 2. Check the envelope pressing device.
System error: #10-004. Please turn off then on	UI error	1. check the UI connector. 2. If the problem persists, replace the OPE board. 3. If ther problem persists, replace the maina board.
This IP address conflicts with an IP address already in use. Check it	The IP address is used in other place elsewhere.	Check the IP address or obtain a new IP address.
Toner cartridge is not compatible. Check user's guide	The toner cartridge you have installed is not for your machine.	Replace the toner cartridge.
Toner cartridge is not installed. Install it.	The toner cartridge is not installed or the CRUM in the cartridege is not properly connected.	Check the connection between the CRUM connector of the toner cartridge and Set.
Toner cartridge is worn. Replace with new one	The color toner cartridge has run out. The machine stops printing.	Replace the toner cartridge.
Toner is empty. Replace toner cartridge	The lifespan of the color toner cartridge which the arrow indicates is reached.	Replace the toner cartridge.
Toner is low. Order new toner cartridge	Toner Cartridge is almost empty.	Replace the toner cartridge.
Too much paper in output bin tray. Remove printed paper	The printed papers are full on the output tray.	1. Remove the paper on outbin tray. 2. Check the Outbin Full Senosr (Component Test -> Sensor Read -> OB value)

4.2.4 Solution

4.2.4.1 Scanner

4.2.4.1(a)COPY

PROBLEM	ITEMS TO BE CHECKED	HOW TO SOLVE
White copy	• Check the Scan-Cover open.	• Room light can transit a thin original.
	• Check shading profile.	• Remake shading profile in the tech mode.
Black copy	• Check the CCD problem in Main PBA.	• Check the CCD harness contact.
	• Check shading profile.	• Remake shading profile in the tech mode.
Defective image quality	• Check shading profile. • Check the gap between original and scanner.	• Remake shading profile in the tech mode. • The gap above 0.5mm can cause a blurred image.
	• Check printing quality.	• See “Print” troubleshooting.
Abnormal noise	• Check the Scanner Motor and any mechanical disturbance.	• Check the right position of the Scanner Motor, and check the any mechanical dis turbance in the CCD carriaging part.
	• Check the Motor Driver in Driver PBA.	• If any driver is defective, replace it.

4.2.4.1(b) PC-Scan

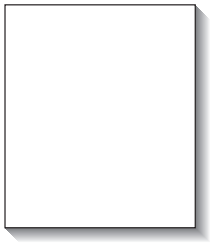
PROBLEM	ITEMS TO BE CHECKED	HOW TO SOLVE
Scanning Error	• Check the printer cable installed.	• Check correct installation, and use standard USB cable.
	• Check how TWAIN driver is installed.	• Remove any other scanner driver. • Reboot after reinstallation of the TWAIN driver.
	• Check the USB signal level.	• If USB signal level is defective, replace Main PBA.
Defective image Quality	• Check shading profile. • Check the gap between original and scanner glass.	• Remake shading profile in the tech mode. • The gap above 0.5mm can cause a blurred image.
	• Check printing quality.	• See “Print” troubleshooting.
Abnormal noise	• Check the Scanner Motor and any mechanical disturbance.	• Check the right position of the Scanner Motor, and check the any mechanical dis turbance in the CCD carriaging part.
	• Check the Motor Driver in Driver PBA.	• If any driver is defective, replace it.

4.2.4.2 FAX

4.2.4.2(a) FAX/TELEPHONE Precautions

PROBLEM	ITEMS TO BE CHECKED	HOW TO SOLVE
TEL LINE CANNOT BE ENGAGED (NO DIAL TONE)	• When you press " OHD" key: a) Check line cord connection. b) Check MAIN LIU harness, and CN2 of the LIU PBA.	a) insert it correctly into the connection jack called "line". b) Replace defective parts.
Cannot MF dial	• Check MAIN-LIU harness.	• Replace defective parts.
MF dial is possible but not DP dial.	• Check the LIU PBA.	• Replace LIU PBA.
Defective fax transmission	• Check MAIN LIU harness. • Check 'hook off' : Refer to 'TEL LINE CANNOT BE ENGAGED' above. • Check transmission path and reception path of the LIU PBA.	• Replace defective parts. • Refer to 'TEL LINE CANNOT BE ENGAGED' above. • Replace main PBA, if abnormal. • Replace LIU PBA. Replace main PBA.
Defective automatic fax reception	• Is the ring checked? • Refer to 'Defective Transmission.'	• Replace LIU PBA if it cannot be checked. • Refer to 'Defective Transmission'.

4.2.4.3 Print Quality

Error Status	Check	Solution
Vertical black line and band 	1. Bad blade of Toner cartridge 2. LSU 3. Bad cleaning blade of drum cartridge.	1. Change Toner cartridge 2. Replace LSU 3. Replace drum cartridge.
Vertical white line 	1. LSU window contamination 2. Toner cartridge	1. Clean LSU window 2. If not LSU, change Toner cartridge.
No image 	1. GND OPC is well grounded? 2. LSU running well? 3. Bias voltage is normal? 4. Lower toner? 5. Is there video data from Main PBA	1. Measure the resistance between frame ground and the ground spring attached frame. Confirm stable ground. Unless bad ground, detach cabinet, check where is bad point 2. Adjust LSU or replace it 3. Normal Dev bias = -450V 4. Shake toner cartridge and print.If a like good, toner is empty 5. Test engine test pattern , replace Main PBA
Light image 	1. LSU light power normal? 2. Enough toner? 3. High charger voltage? 4. Lower bias voltage 5. Contamination of high voltage contact. 6. Transfer volatge and roller.	1. LSU light power check is difficult. Compare with new one and check. 2. Check toner and the toner cartridge counter 3~4. Measure all high voltage output. 5. Leakage toner cause bad contact and increase contact resistance. Clean contaminated area.

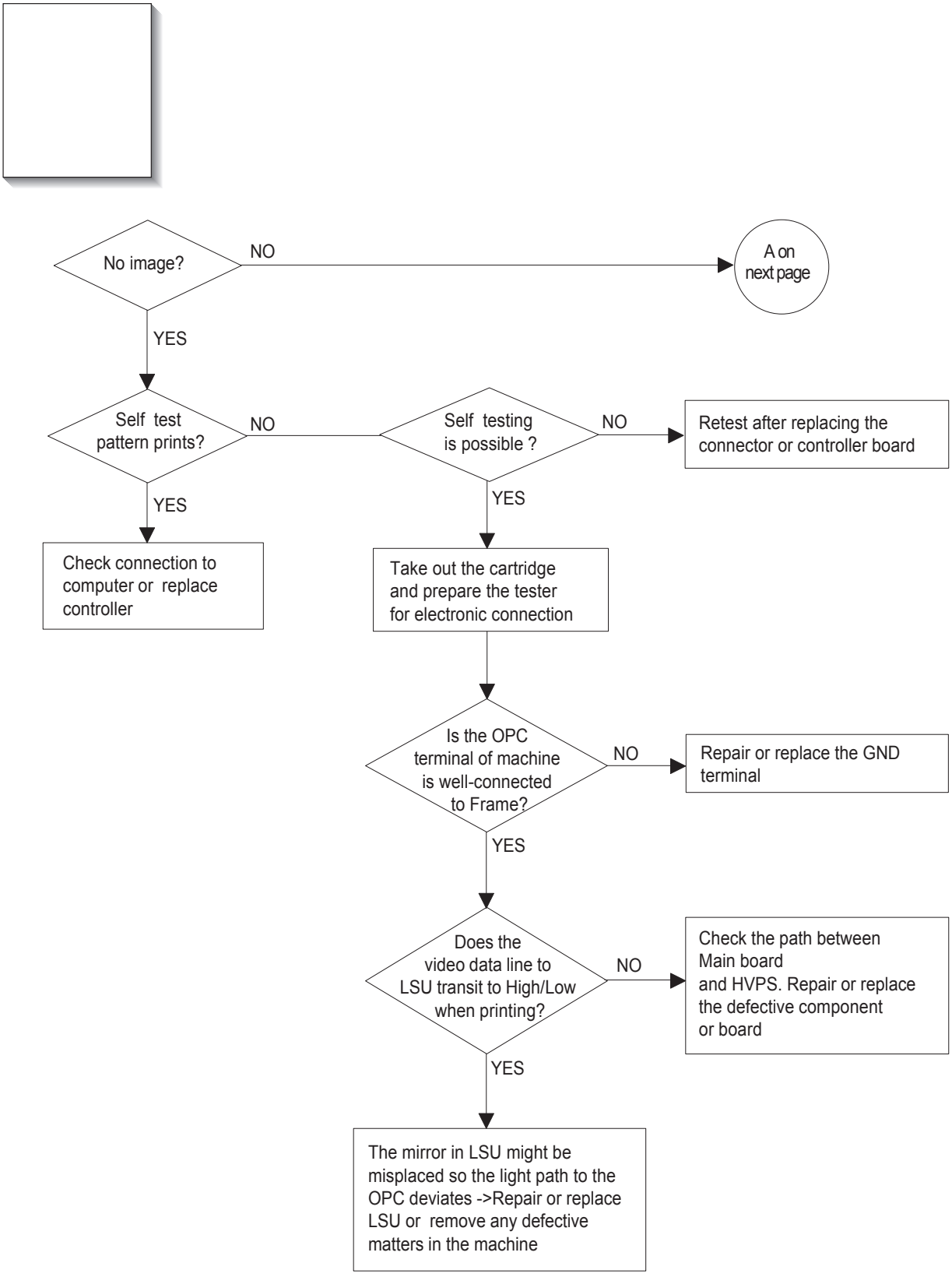
Error Status	Check	Solution
Dark image	1. LSU light power normal? 2. Bias voltage output is high? 3. Video data is always supplied? 4. Bad high charge voltage contact.	1. Check the rated level and replace. 2. Set to power rating. 3. Replace defected board. 4. Check the charge voltage or change the drum cartridge.
Background	1. High voltage output is normal? 2. C/R of drum cartridge is contaminated?	1. Adjust to the rated status. 2. Replace drum cartridge.
Ghost	1. High voltage output. 2. Pre-Transfer Lamp. 3. Bad high voltage contact.	1. Check every high voltage. 2. Check the turn-on PTL, LED crash. 3. Clean the inside machine or replace drum cartridge.
Stains on back of paper	1. Contamination of transfer roller. 2. Stains of paper path. 3. Pressure roller's contamination.	1. Clean the transfer roller with vacuum cleaner. 2. Clean the area of paper path with cloth or air cleaner. 3. Remove fuser and replace it.
Poor Fusing	1. Use recommended paper? 2. Check fusing temperature. 3. The machine was under the low tempera ture for a long time?	1. Should use recommended paper. 2. Check engine controller board. If you have not thermometer, measure the thermistor voltage to CPU, If 2.3V±5% in printing CPU works well. Then, disassemble fuser and check the thermistor contact and thermistor. 3. Re-check after putting the machine in the warm place for certain period.
Partial blank image (not periodic)	1. Toner is low? 2. The toner cartridge is out of position?	1. Replace Toner cartridge. 2. Checkand adjust.

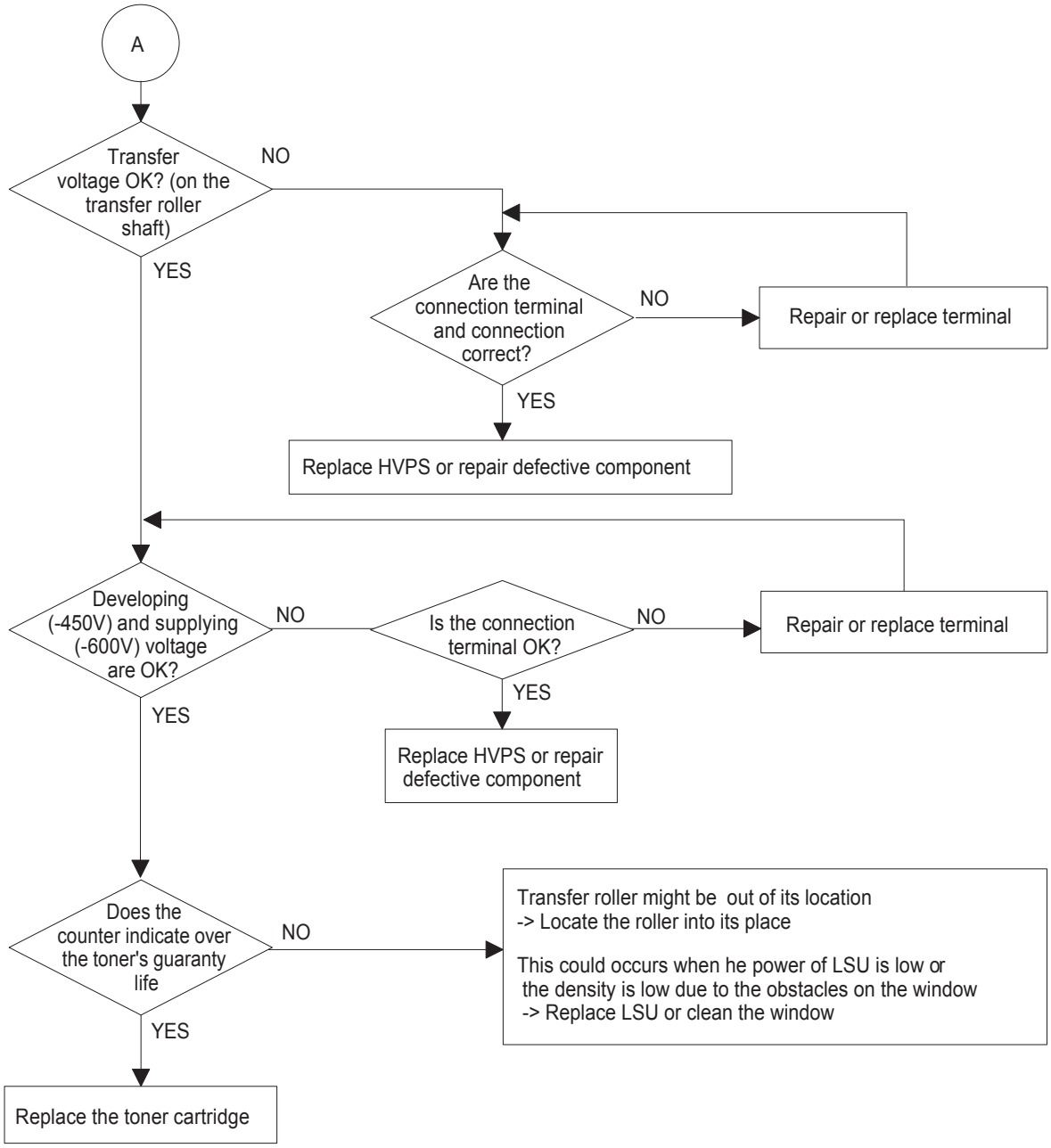
Error Status	Check	Solution
Partial blank image (periodic)	1. Develop roller scar or particle. 2. Scar or particle. (94.3 mm) 3. Transfer roller scar or particle. (56.6 mm)	1. Replace toner cartridge. 2. Replace drum cartridge. 3. Replace transfer roller.
Different image density (left and right) 	1. Charge roller's pressure force unbalance 2. Dev. roller and OPC or Dev. roller and blade's pressure force unbalance 3. Transfer roller's pressure force unbalance of each side	1. Replace drum cartridge. 2. Replace toner cartridge and drum cartridge. 3. Check left and right spring of transfer roller and the spring pressing the toner cartridge inside the machine
Horizonral band 	1. Unstable high voltage contact 2. Charge roller's contamination 3. Contamination of heat roller 4. Malfunction of LSU	1. Clean each contact and check good contact 2. Clean charge roller 3. Replace fuser unit 4. Check Main PBA.

Abnormal Image Printing and Defective Roller

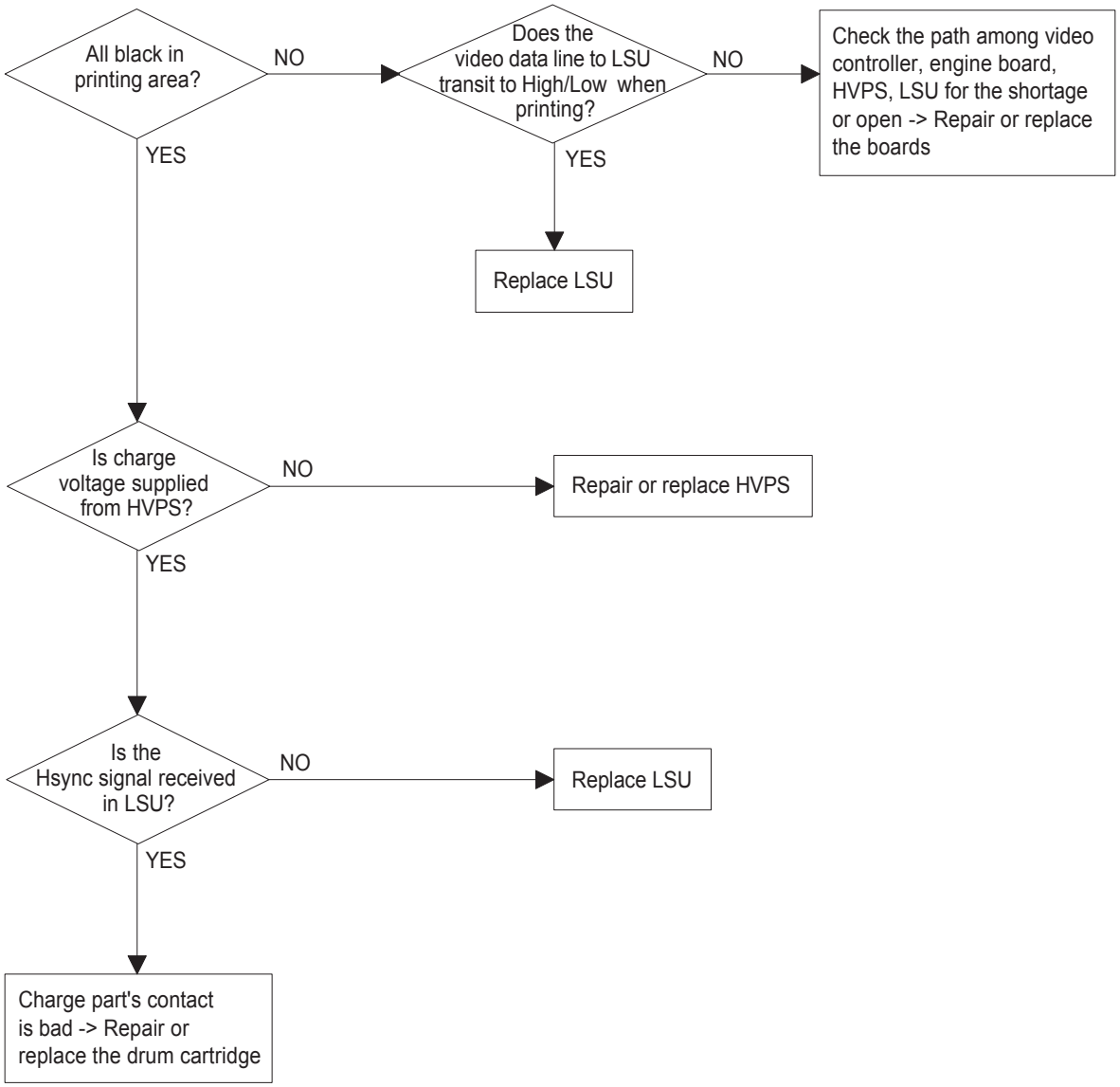
No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	44.9mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	47.1mm	Black side contamination/transfer fault
6	Heat Roller	77.8mm	Black spot and fuser ghost
7	Pressure Roller1	62.8mm	Black side contamination
8	Pressure Roller2	50.2mm	Black side contamination

No Image

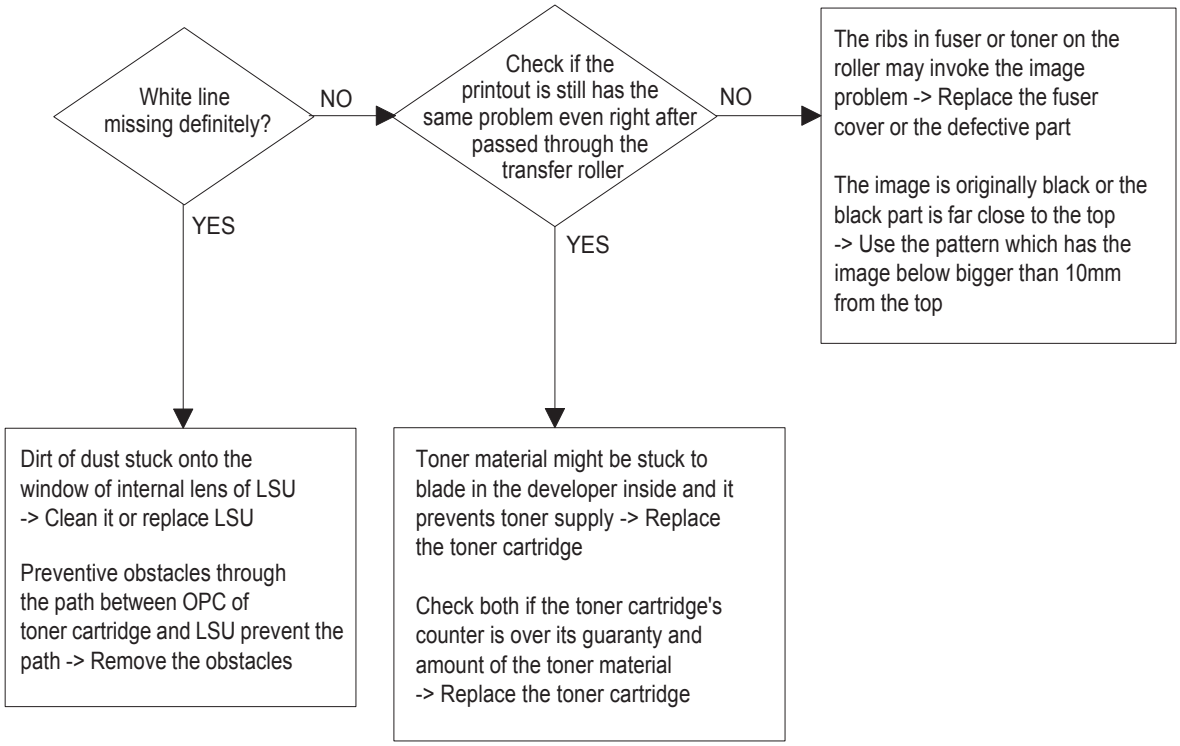

No image?
NO
A on next page
YES
Self test pattern prints?
NO
Self testing is possible ?
NO
Retest after replacing the connector or controller board
YES
YES
Check connection to computer or replace controller
Take out the cartridge and prepare the tester for electronic connection
Is the OPC terminal of machine is well-connected to Frame?
NO
Repair or replace the GND terminal
YES
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path between Main board and HVPS. Repair or replace the defective component or board
YES
The mirror in LSU might be misplaced so the light path to the OPC deviates ->Repair or replace LSU or remove any defective matters in the machine


A
Transfer voltage OK? (on the transfer roller shaft)
NO
YES
Are the connection terminal and connection correct?
NO
Repair or replace terminal
YES
Replace HVPS or repair defective component
Developing (-450V) and supplying (-600V) voltage are OK?
NO
Is the connection terminal OK?
NO
Repair or replace terminal
YES
Replace HVPS or repair defective component
YES
Does the counter indicate over the toner's guaranty life
NO
Transfer roller might be out of its location
-> Locate the roller into its place
This could occurs when he power of LSU is low or the density is low due to the obstacles on the window
-> Replace LSU or clean the window
YES
Replace the toner cartridge

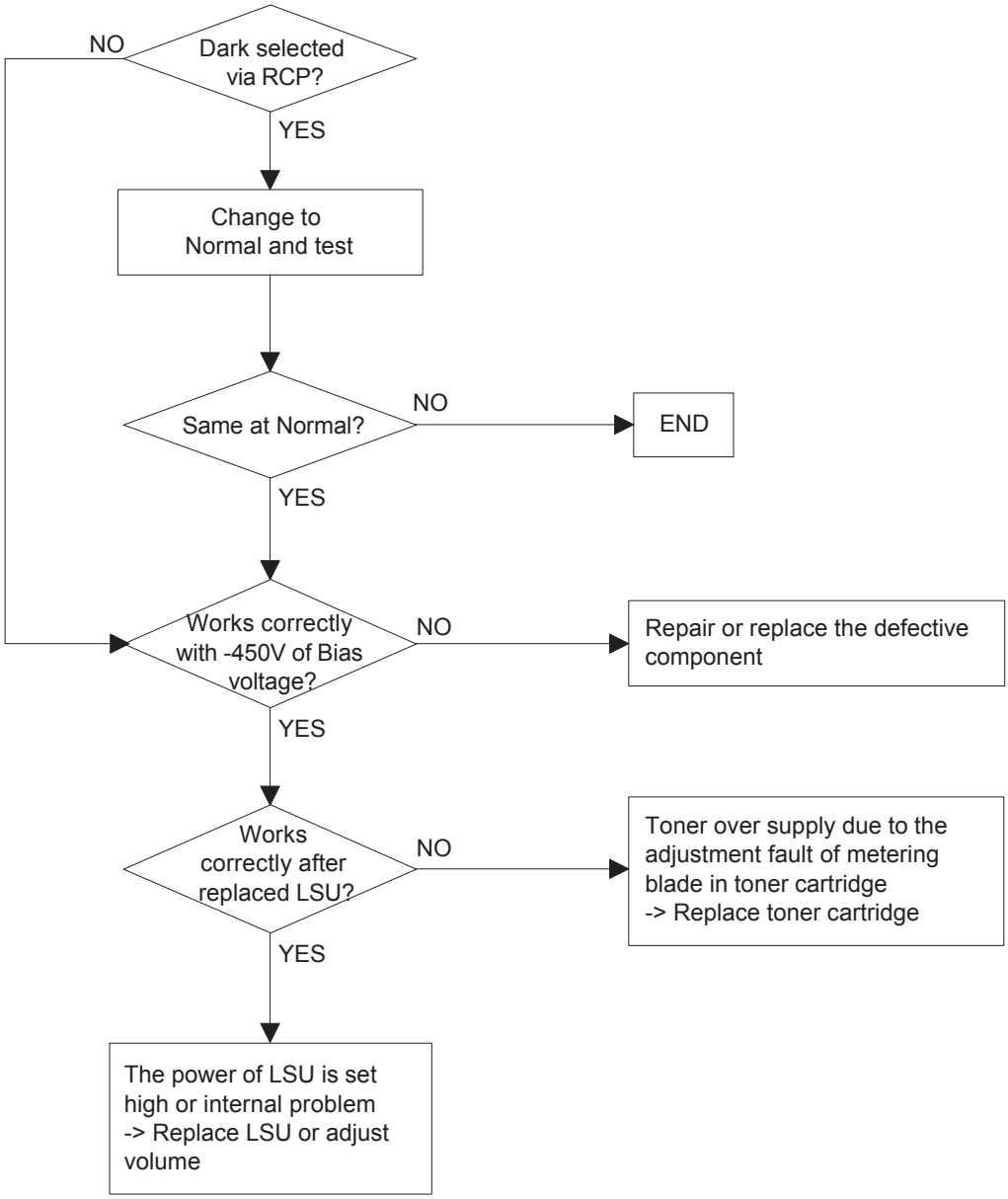
All Black


All black in printing area?
NO
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path among video controller, engine board, HVPS, LSU for the shortage or open -> Repair or replace the boards
YES
YES
Replace LSU
Is charge voltage supplied from HVPS?
NO
Repair or replace HVPS
YES
Is the Hsync signal received in LSU?
NO
Replace LSU
YES
Charge part's contact is bad -> Repair or replace the drum cartridge

Vertical White Line (Band)

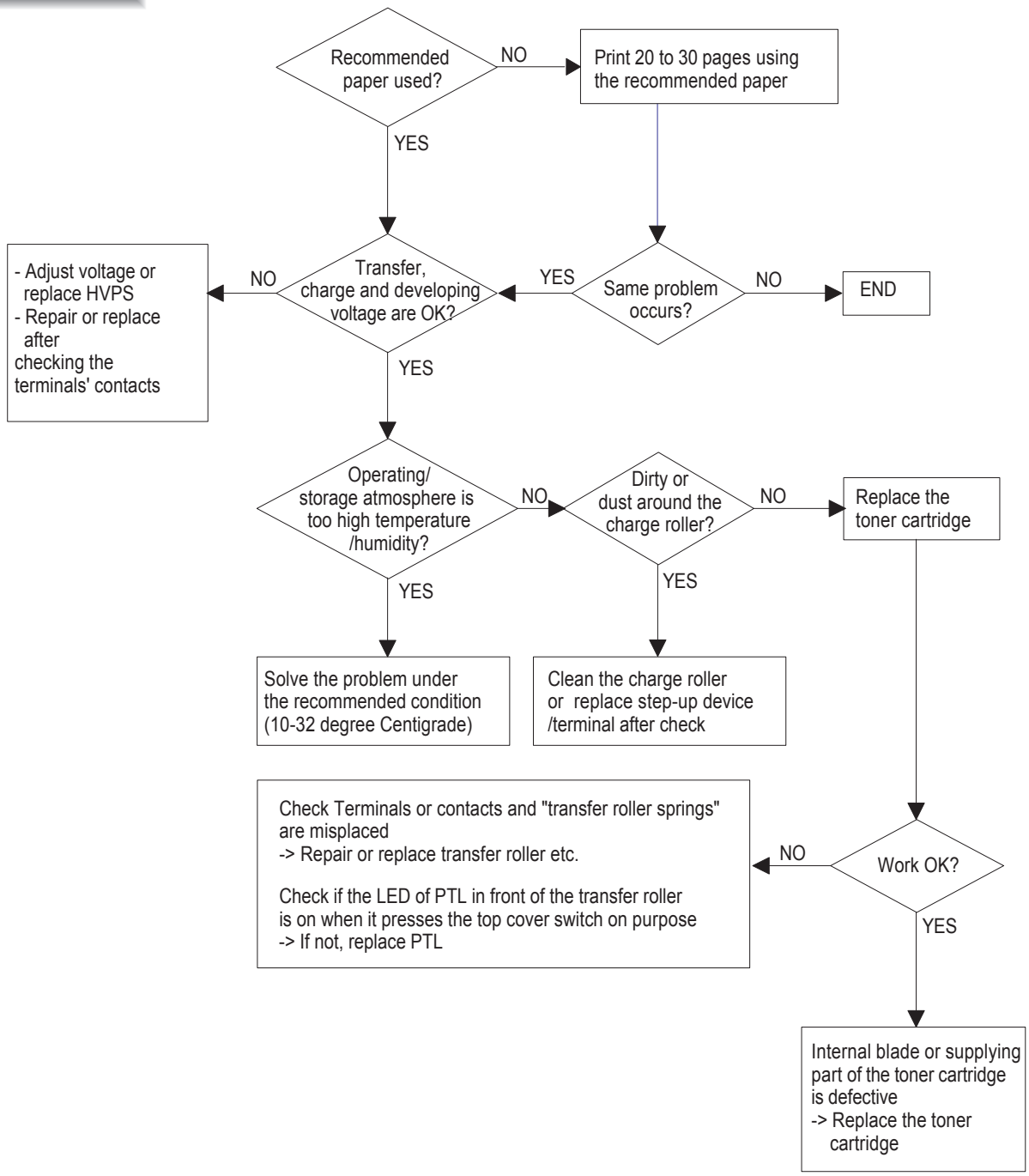

White line missing definitely?
NO
Check if the printout is still has the same problem even right after passed through the transfer roller
NO
The ribs in fuser or toner on the roller may invoke the image problem -> Replace the fuser cover or the defective part
The image is originally black or the black part is far close to the top -> Use the pattern which has the image below bigger than 10mm from the top
YES
YES
Dirt of dust stuck onto the window of internal lens of LSU -> Clean it or replace LSU
Preventive obstacles through the path between OPC of toner cartridge and LSU prevent the path -> Remove the obstacles
Toner material might be stuck to blade in the developer inside and it prevents toner supply -> Replace the toner cartridge
Check both if the toner cartridge's counter is over its guaranty and amount of the toner material -> Replace the toner cartridge

Dark Image

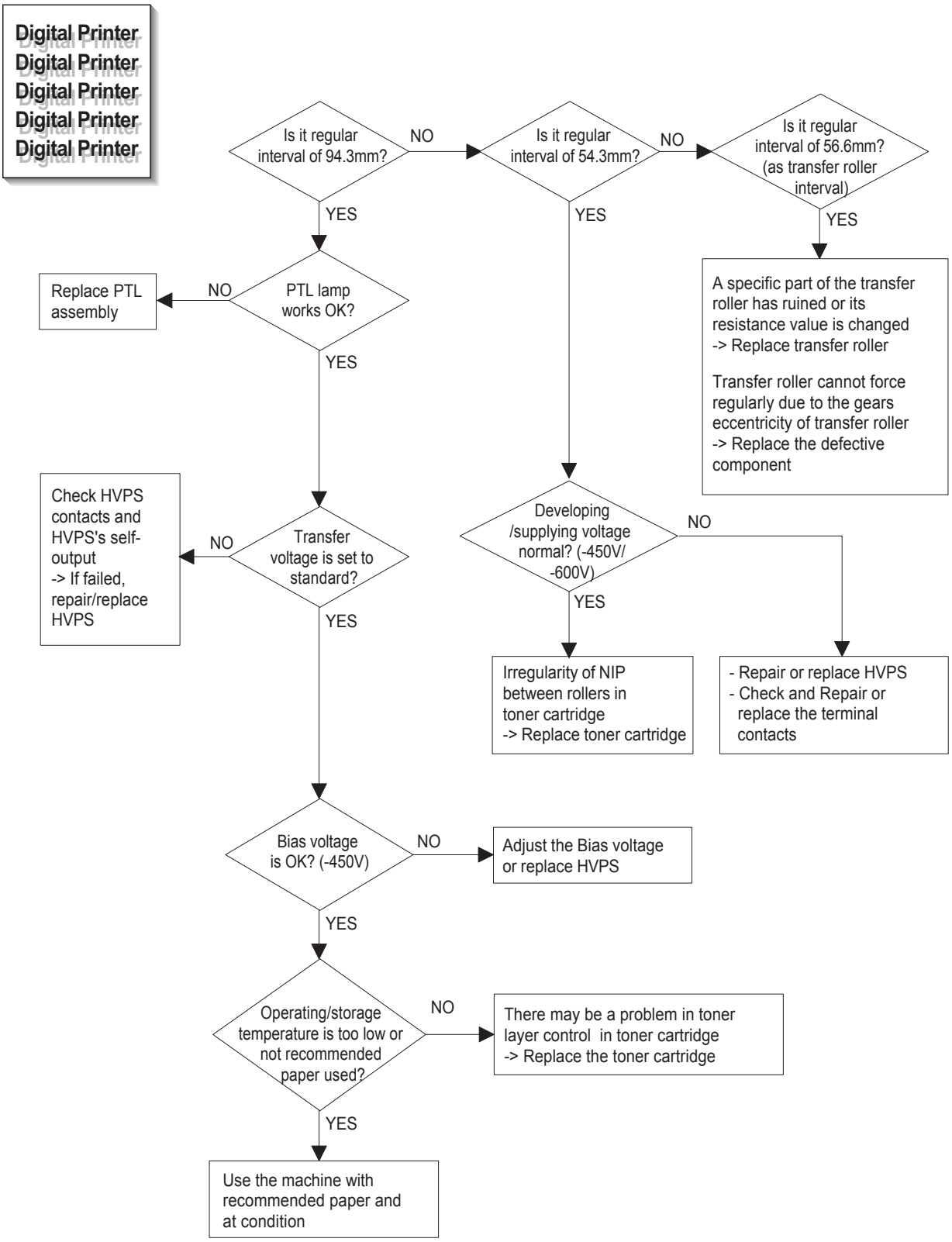

Dark selected via RCP?
NO
YES
Change to Normal and test
Same at Normal?
NO
END
YES
Works correctly with -450V of Bias voltage?
NO
Repair or replace the defective component
YES
Works correctly after replaced LSU?
NO
Toner over supply due to the adjustment fault of metering blade in toner cartridge
-> Replace toner cartridge
YES
The power of LSU is set high or internal problem
-> Replace LSU or adjust volume

Barkground

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

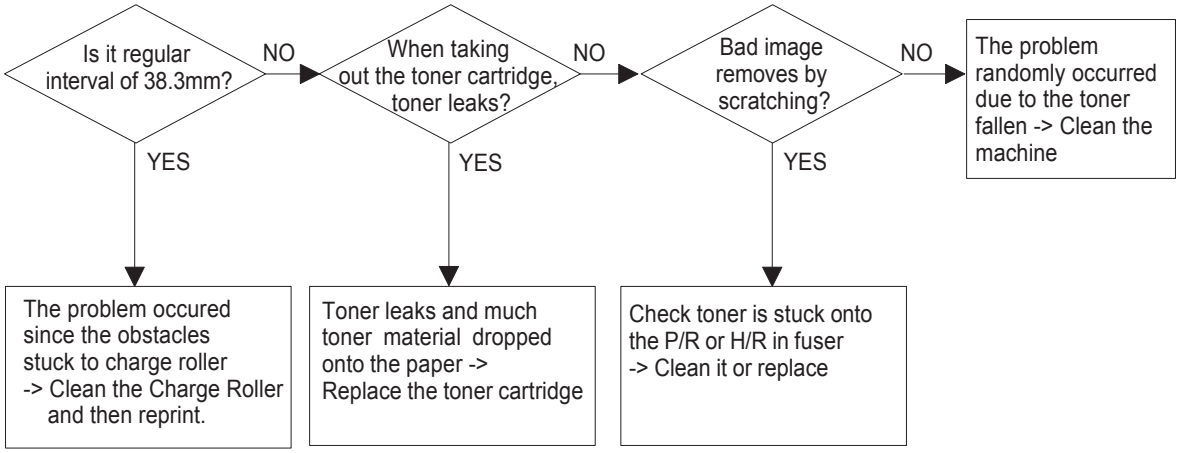

Recommended paper used?
NO
Print 20 to 30 pages using the recommended paper
YES
Same problem occurs?
NO
END
YES
Transfer, charge and developing voltage are OK?
NO
- Adjust voltage or replace HVPS
- Repair or replace after checking the terminals' contacts
YES
Operating/ storage atmosphere is too high temperature /humidity?
NO
Dirty or dust around the charge roller?
NO
Replace the toner cartridge
YES
YES
Solve the problem under the recommended condition (10-32 degree Centigrade)
Clean the charge roller or replace step-up device /terminal after check
Check Terminals or contacts and "transfer roller springs" are misplaced
-> Repair or replace transfer roller etc.
Check if the LED of PTL in front of the transfer roller is on when it presses the top cover switch on purpose
-> If not, replace PTL
NO
Work OK?
YES
Internal blade or supplying part of the toner cartridge is defective
-> Replace the toner cartridge

Ghost

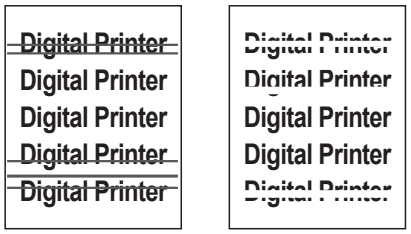

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Is it regular interval of 94.3mm?
NO
Is it regular interval of 54.3mm?
NO
Is it regular interval of 56.6mm? (as transfer roller interval)
YES
YES
YES
A specific part of the transfer roller has ruined or its resistance value is changed
-> Replace transfer roller
Transfer roller cannot force regularly due to the gears eccentricity of transfer roller
-> Replace the defective component
Replace PTL assembly
NO
PTL lamp works OK?
YES
Check HVPS contacts and HVPS's self-output
-> If failed, repair/replace HVPS
NO
Transfer voltage is set to standard?
YES
Developing /supplying voltage normal? (-450V/ -600V)
NO
YES
Irregularity of NIP between rollers in toner cartridge
-> Replace toner cartridge
- Repair or replace HVPS
- Check and Repair or replace the terminal contacts
Bias voltage is OK? (-450V)
NO
Adjust the Bias voltage or replace HVPS
YES
Operating/storage temperature is too low or not recommended paper used?
NO
There may be a problem in toner layer control in toner cartridge
-> Replace the toner cartridge
YES
Use the machine with recommended paper and at condition

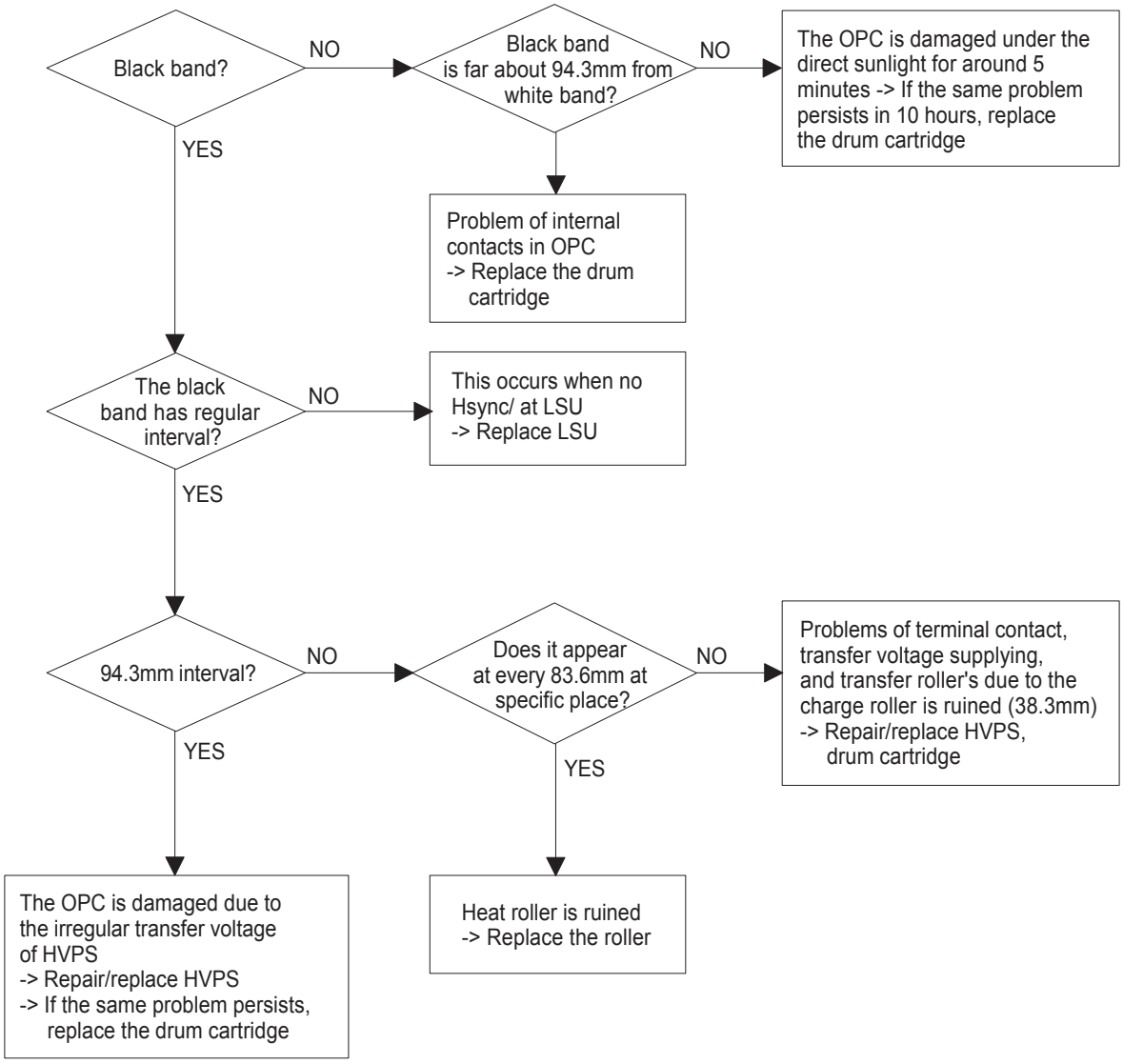
Black Spot

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer


Is it regular interval of 38.3mm?
NO
When taking out the toner cartridge, toner leaks?
NO
Bad image removes by scratching?
NO
The problem randomly occurred due to the toner fallen -> Clean the machine
YES
YES
YES
The problem occured since the obstacles stuck to charge roller -> Clean the Charge Roller and then reprint.
Toner leaks and much toner material dropped onto the paper -> Replace the toner cartridge
Check toner is stuck onto the P/R or H/R in fuser -> Clean it or replace

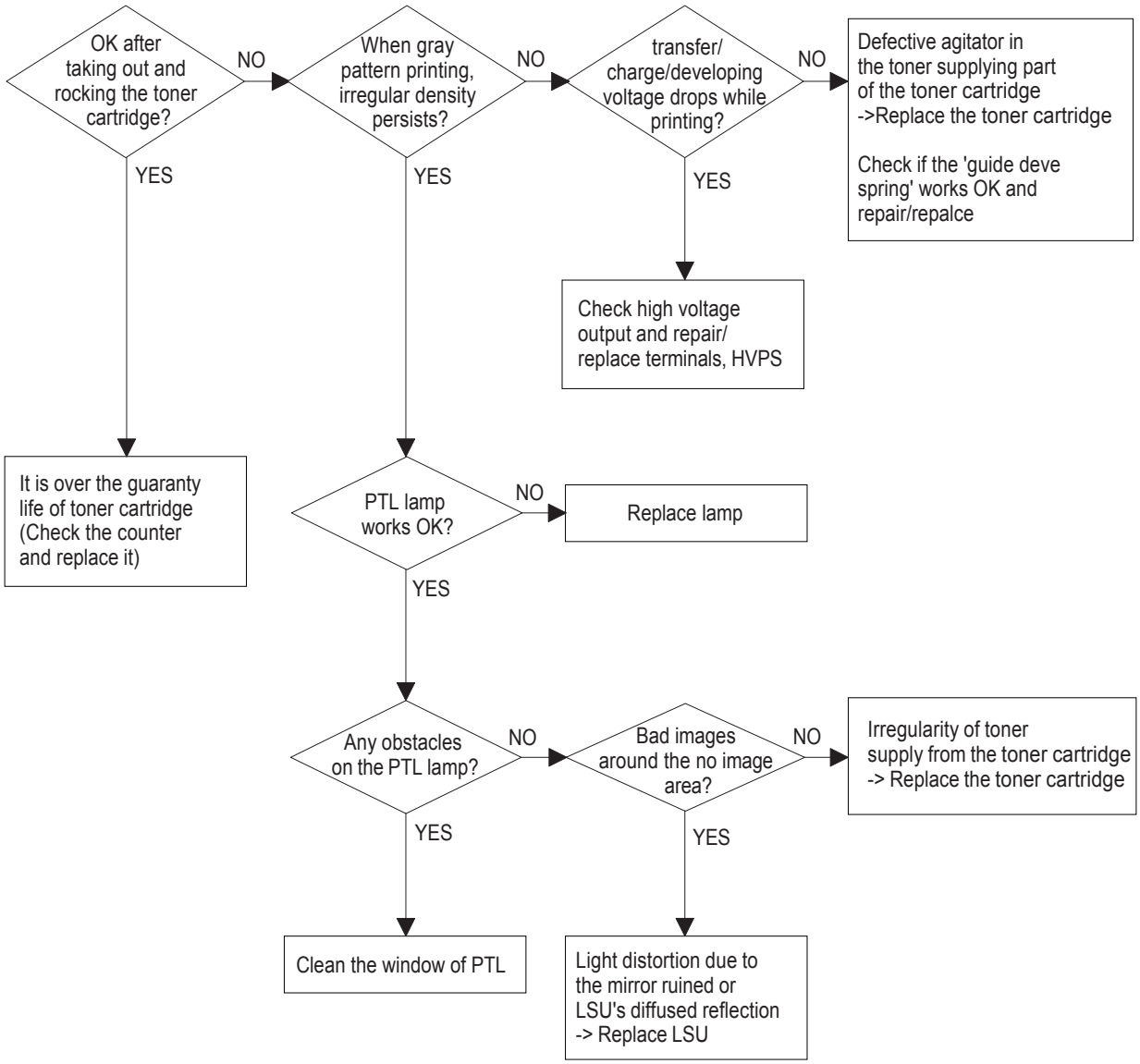
Horzontal Band




Black band?
NO
Black band is far about 94.3mm from white band?
NO
The OPC is damaged under the direct sunlight for around 5 minutes -> If the same problem persists in 10 hours, replace the drum cartridge
YES
Problem of internal contacts in OPC -> Replace the drum cartridge
The black band has regular interval?
NO
This occurs when no Hsync/ at LSU -> Replace LSU
YES
94.3mm interval?
NO
Does it appear at every 83.6mm at specific place?
NO
Problems of terminal contact, transfer voltage supplying, and transfer roller's due to the charge roller is ruined (38.3mm) -> Repair/replace HVPS, drum cartridge
YES
YES
The OPC is damaged due to the irregular transfer voltage of HVPS -> Repair/replace HVPS -> If the same problem persists, replace the drum cartridge
Heat roller is ruined -> Replace the roller

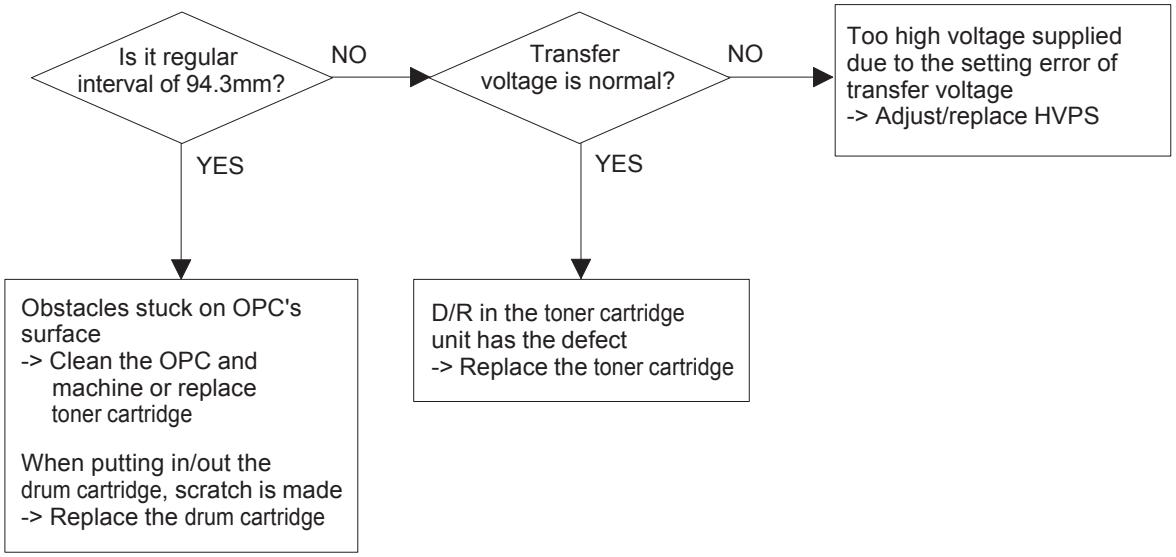
Irregular Density

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

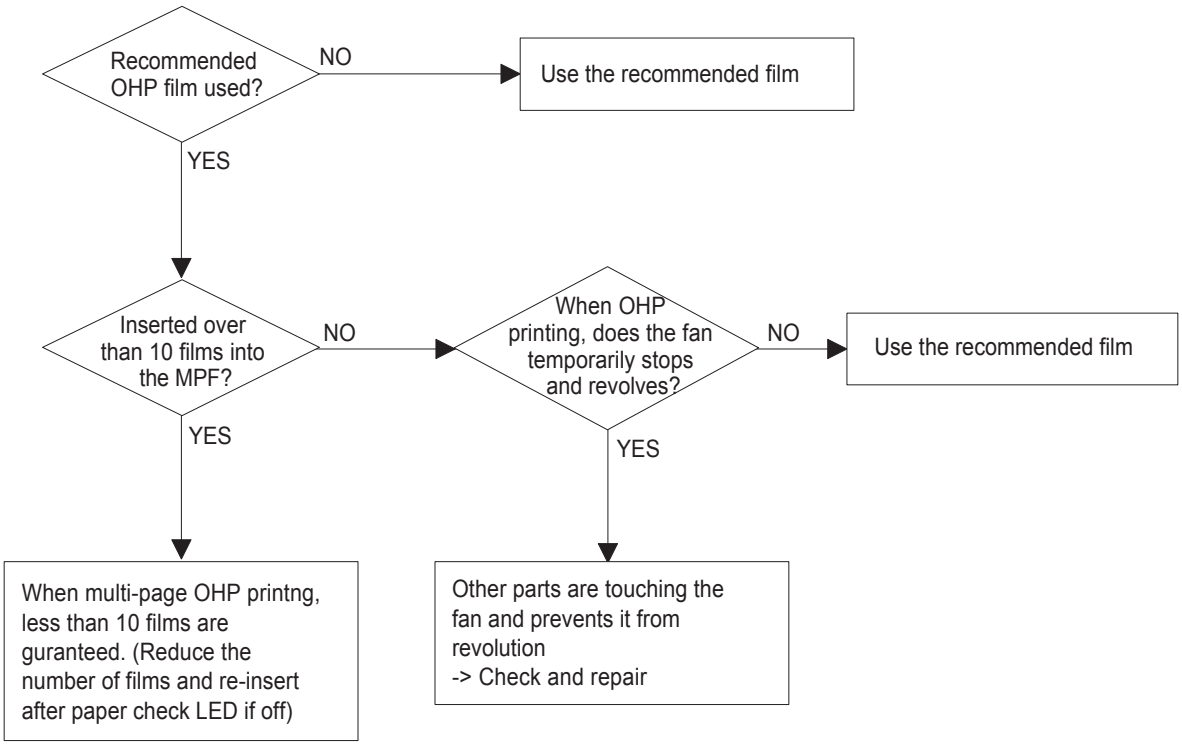

OK after taking out and rocking the toner cartridge?
NO
When gray pattern printing, irregular density persists?
NO
transfer/ charge/developing voltage drops while printing?
NO
Defective agitator in the toner supplying part of the toner cartridge ->Replace the toner cartridge
Check if the 'guide deve spring' works OK and repair/repalce
YES
YES
YES
Check high voltage output and repair/ replace terminals, HVPS
It is over the guaranty life of toner cartridge (Check the counter and replace it)
PTL lamp works OK?
NO
Replace lamp
YES
Any obstacles on the PTL lamp?
NO
Bad images around the no image area?
NO
Irregularity of toner supply from the toner cartridge -> Replace the toner cartridge
YES
YES
Clean the window of PTL
Light distortion due to the mirror ruined or LSU's diffused reflection -> Replace LSU

White Spot

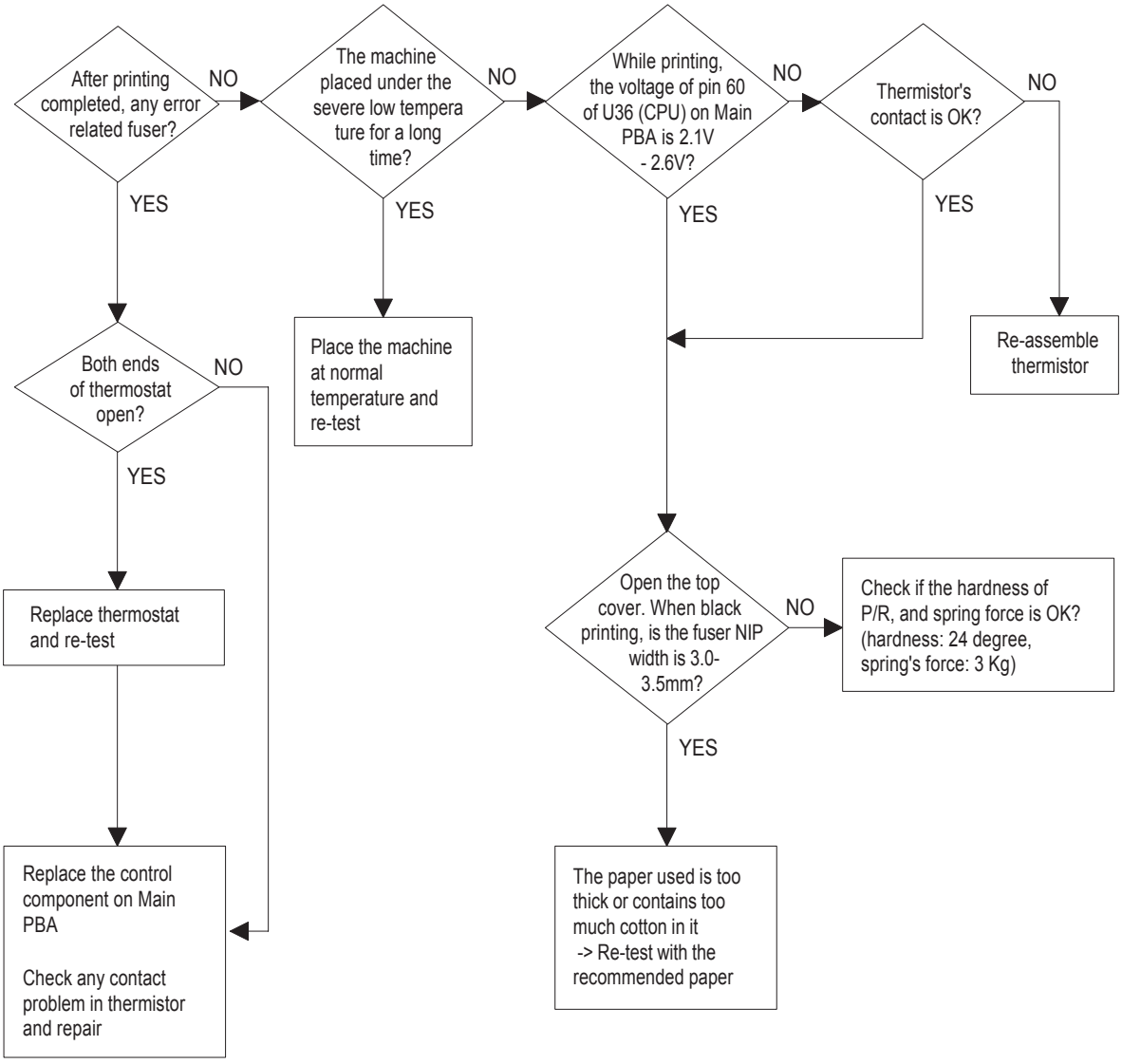
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer


Is it regular interval of 94.3mm?
NO
Transfer voltage is normal?
NO
Too high voltage supplied due to the setting error of transfer voltage
-> Adjust/replace HVPS
YES
YES
Obstacles stuck on OPC's surface
-> Clean the OPC and machine or replace toner cartridge
When putting in/out the drum cartridge, scratch is made
-> Replace the drum cartridge
D/R in the toner cartridge unit has the defect
-> Replace the toner cartridge

Trembling at the End When OHP Printing


Recommended OHP film used?
NO
Use the recommended film
YES
Inserted over than 10 films into the MPF?
NO
When OHP printing, does the fan temporarily stops and revolves?
NO
Use the recommended film
YES
YES
When multi-page OHP printng, less than 10 films are guranteed. (Reduce the number of films and re-insert after paper check LED if off)
Other parts are touching the fan and prevents it from revolution
-> Check and repair

Poor Fusing Grade

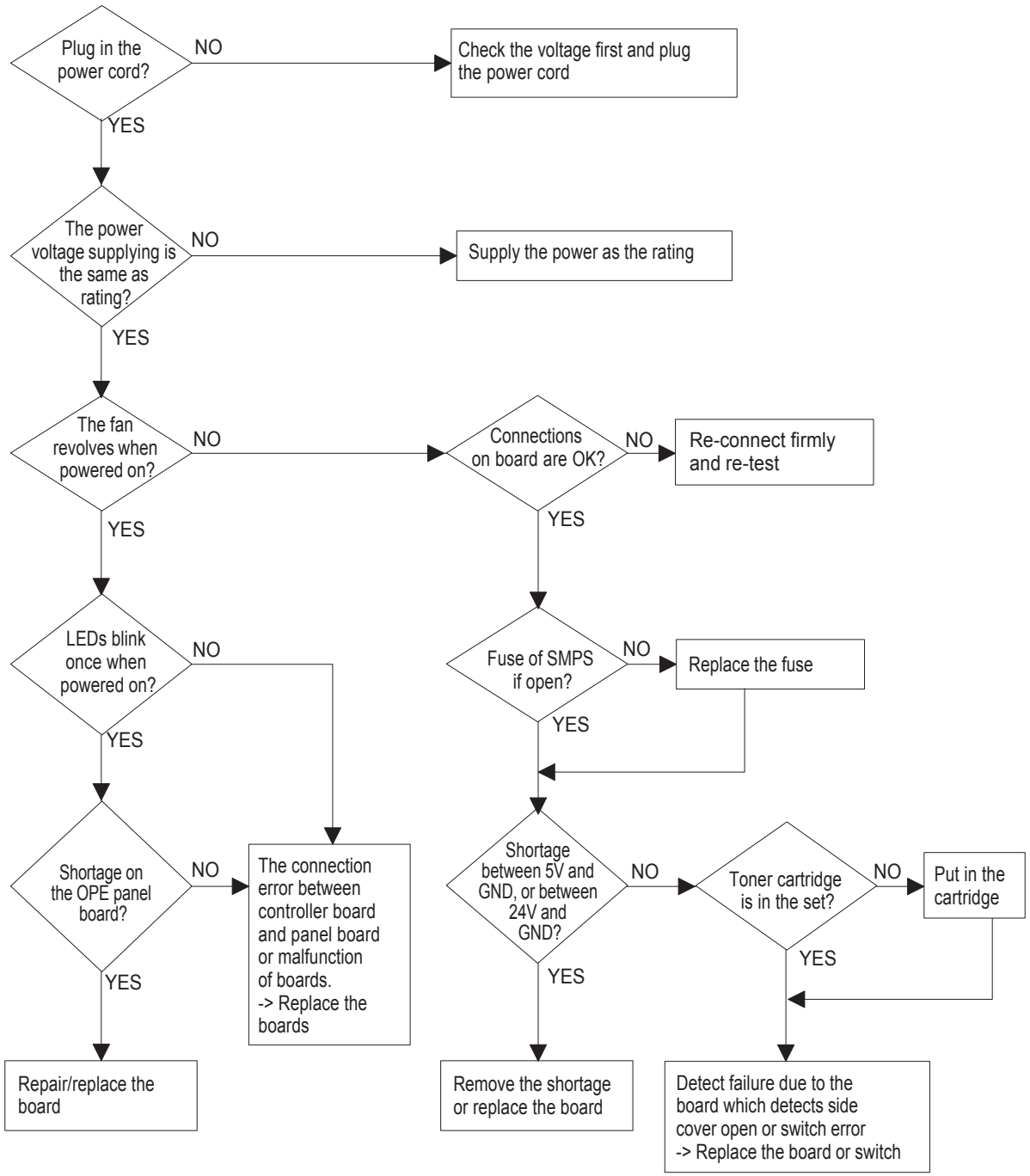

After printing completed, any error related fuser?
NO
YES
The machine placed under the severe low tempera ture for a long time?
NO
YES
While printing, the voltage of pin 60 of U36 (CPU) on Main PBA is 2.1V - 2.6V?
NO
YES
Thermistor's contact is OK?
NO
YES
Re-assemble thermistor
Place the machine at normal temperature and re-test
Both ends of thermostat open?
NO
YES
Replace thermostat and re-test
Replace the control component on Main PBA
Check any contact problem in thermistor and repair
Open the top cover. When black printing, is the fuser NIP width is 3.0-3.5mm?
NO
YES
Check if the hardness of P/R, and spring force is OK? (hardness: 24 degree, spring's force: 3 Kg)
The paper used is too thick or contains too much cotton in it
-> Re-test with the recommended paper

4.2.3.4 Malfunction

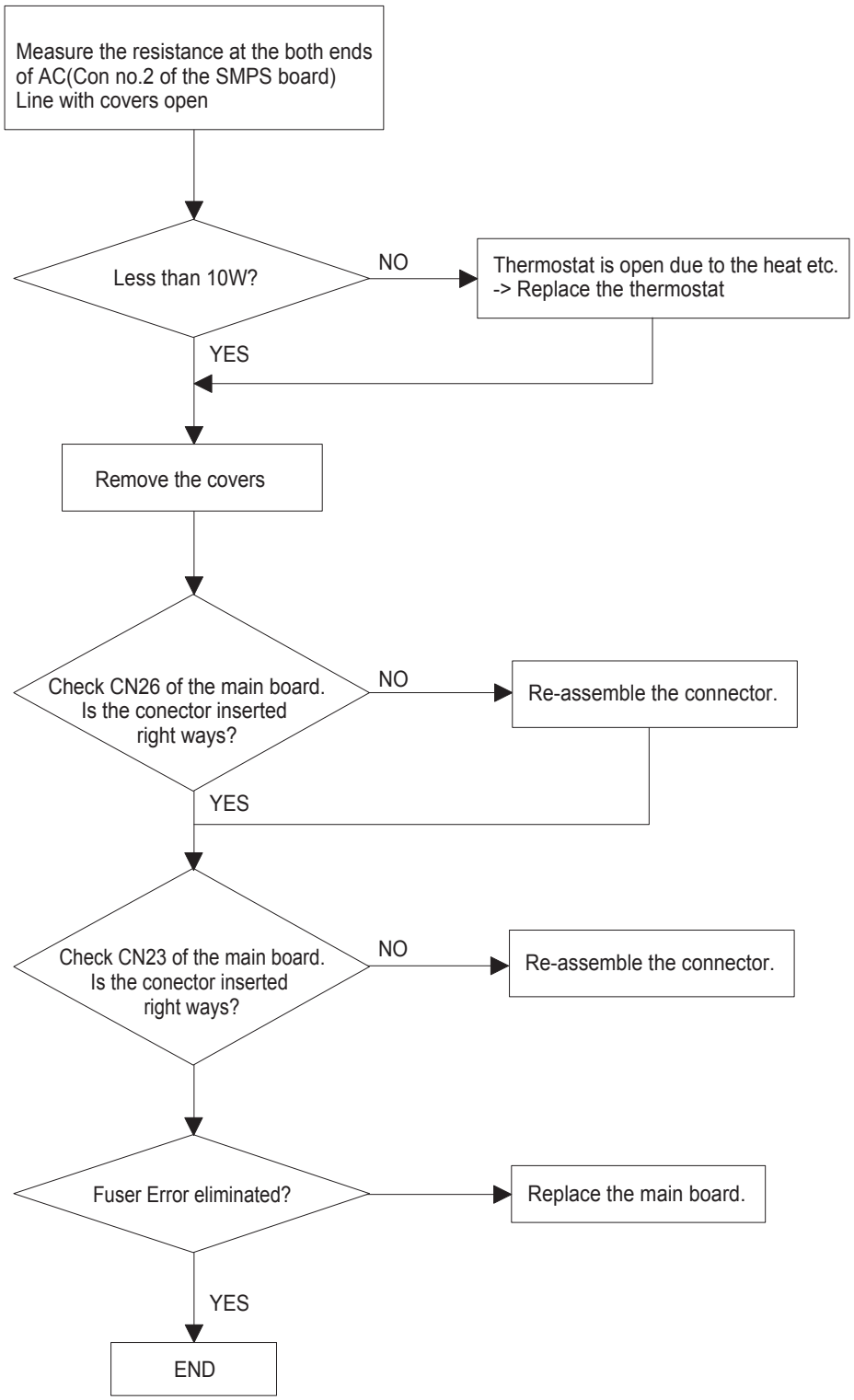
Error Status	Check	Solution
No power	1. Check power is supplying 2. Check fuse F1 open	1. If supplying power differs from machine's power rating, replace the machine. 2. Replace it.
Fuser Error	1. Thermostat open 2. AC wire open 3. Thermistor wire open 4. Main PBA	1. Detach AC connector and measure the resistane between pin 1 and 2. If it is megohm, thermostat is open, Replace it. 2. Check bad connector contact or wire is cut. 3. Check thermistor wire and its connection. 4. Replace Main PBA
Cover open	1. When close Side cover, check the lever is pressed 2. Micro switch's contact 3. CPU and related circuit	1. Open Side cover and press the lever with pen. If Controller detects cover close, there is some mechanical trouble in Side cover and lever's assembly. If not so there is electrical problem.
Jam 0	Check where Jam 0 happens 1. Paper is not picked up 2. Paper is located in feed sensor 3. Happened when inserting specific papers such as envelope into the MPF (Multipurpose Paper Feeder)? 4. Happened when inserting specific papers such as envelope into the Manual Feeder? 5. Is the Stacker Extender is folded out? 6. Does not the Guide Adjust distort the papers	1. Check whether solenoid is working or not by using Engine test mode 2. Check feed sensor malfunction. 3. Re-try inserting a fewer papers. • fan the papers and align • take out the loaded papers and insert them reverse direction 4. Take out the loaded papers and insert them reverse direction • inserted papers as recommended for Manual Feeding? • When loading, tap the papers until paper detect sensor senses loading 5. When using long papers, use the Stacker Extender 6. Adjust Guide to fit the paper width
Jam 1	Paper is stopped in just after of fuser unit.	1. It is mostly resulted from double feeding. Check paper is well stocked in feeder. 2. Check feed actuator position and actuator's operating. There may be stiff movind or double reflection. If not so, check the operation of feed sensor by Engine test mode. 3. Check exit lever operation. Remore jam and check actuator moving by hand. If actuator is too stiff, paper is wrapped around the heat roller. Remove obstacles or replace.

Error Status	Check	Solution
Jam 2	Check where Jam 2 happens 1. Paper is curled and cannot exit. 2. Paper is curled in the exit cover?	1. Remove paper using pinset or some tool and watch if separate claws have any troble. Clean around fuser. 2. Check locking works wells. Watch whether the ribs of exit cover hace any burr or resisitive edge. If they do, remove obstacles or replace.
Jam 2 at face-down tray	1. Then paper is not drawn in because of the stack of papers in the Out tray. 2. Does it curl while coming out?	1. Load recommended quantity of papers 2. Open the Cover Front and check whether roller or spring, which are related to paper out, is not out of position. If so, re-locate or replace.
Clutch error	1. Check the spring of solenoid 2. Check the armature assembly/ cushion 3. Electrical check	1. Check whether the spring is expanded or not. 2. Check armature is well installed. It may be unstable assemble. 3. Remove the Main PBA.
High voltage error	1. Check the terminal output voltage 2. Check HVPS	1. Remove the Toner cartridge and open the cover and press cover open switch lever and measure the voltage with high voltage probe and sending printing data. If the voltage is normal, change the toner cartridge. 2. Disassemble the left side cover, and check HV of the solder side of HVPS and change it.
Feeding obstacles	Does the Plate-knockup prevent the paper loading?	MPF : Turn the power off and on. Open and close the Side cover to return to the original state. Cassette : Adjust Guide to fit the paper width.
Skew	Is the Guide adjust set to the paper width?	Fit the paper width using the Guide adjust.
Stacking	1. Took out the Stacker extender to support long papers? 2. Stacked too many papers more than Stacker can hold?	1. Use extender as per the paper length. 2. The Face-up stacker normally can hold 100 pages when using 75g/m2, however, stacking capacity can be lowered depending on the type of papers.
Engine Error	Check CBF Harness_CN7.(Main PBA to LSU)	Refer to troubleshooring “ENGINE ERROR”.
Document Jam	Document is not picked up(in ADF).	1. Check document is well stocked in ADF. 2. Check whether document was been fastened together by staple or clip. 3. Load recommended quantity of papers.
	Document is stopped after it has fed into the ADF.	1. Check whether the Reg. sensor is working or not. 2. Check whether the Feed Roller is working or not.
	Does it curl while coming out?	1. Check the Open Cover whether there are bosses. 2. Check the ADF ass’y is well assemble.

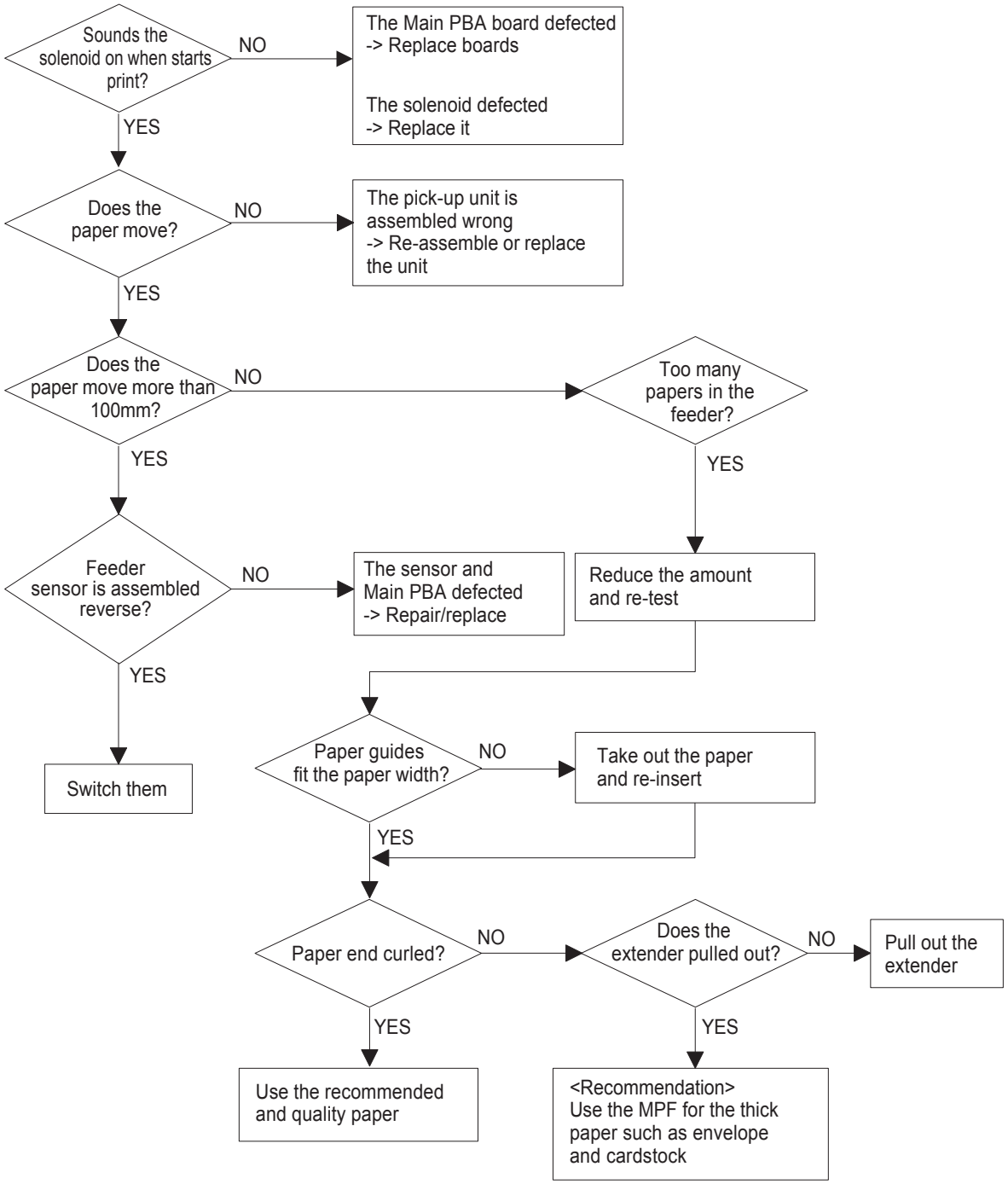
No Power (LCD NO display LED Off)



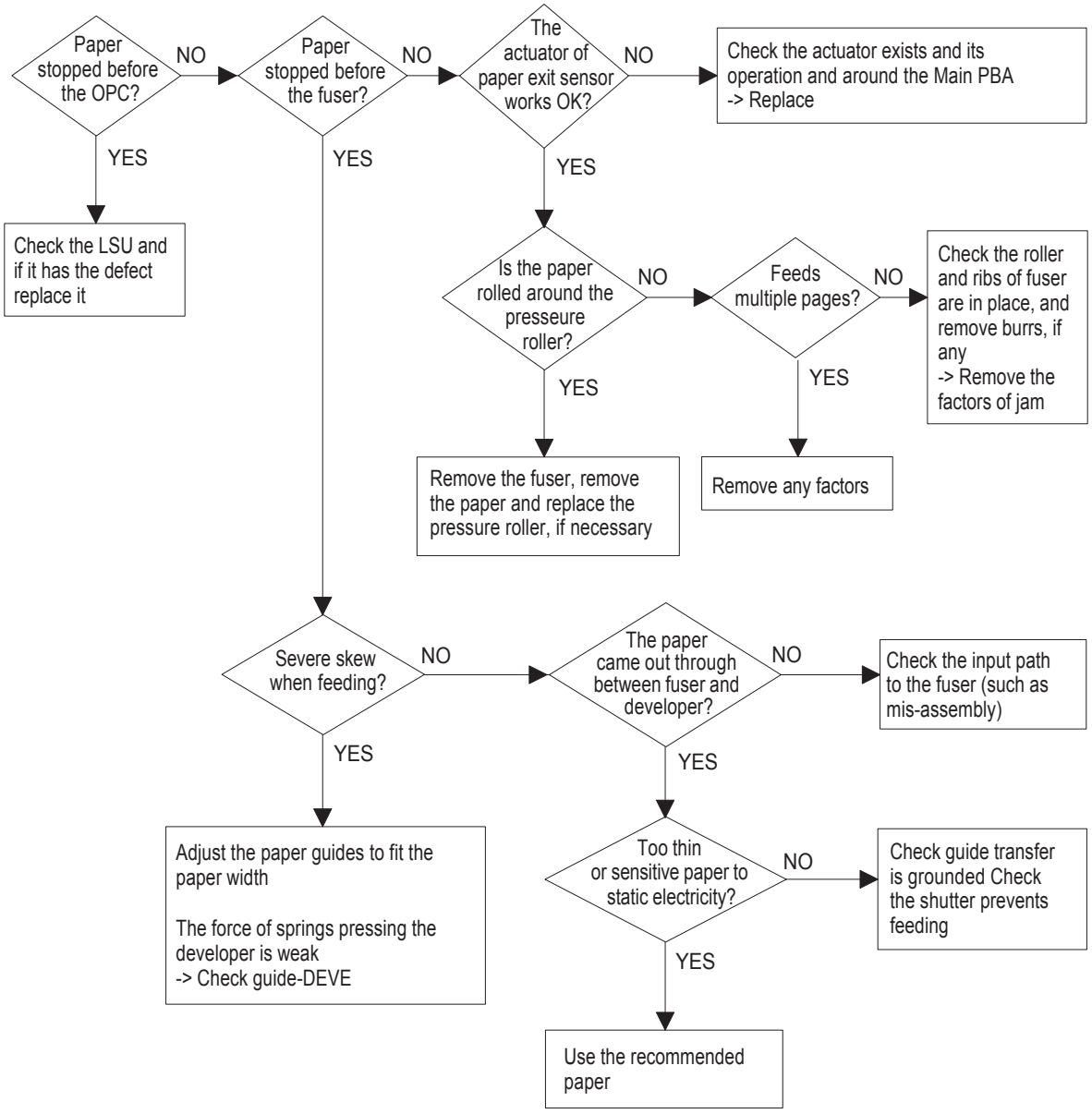
Fuser Error


Measure the resistance at the both ends of AC(Con no.2 of the SMPS board) Line with covers open
Less than 10W?
NO
Thermostat is open due to the heat etc. -> Replace the thermostat
YES
Remove the covers
Check CN26 of the main board. Is the conector inserted right ways?
NO
Re-assemble the connector.
YES
Check CN23 of the main board. Is the conector inserted right ways?
NO
Re-assemble the connector.
Fuser Error eliminated?
Replace the main board.
YES
END

Paper Jam (Mis-Feeding)



Paper Jam (Jam 1)


Paper stopped before the OPC?
NO
Paper stopped before the fuser?
NO
The actuator of paper exit sensor works OK?
NO
Check the actuator exists and its operation and around the Main PBA
-> Replace
YES
YES
YES
Check the LSU and if it has the defect replace it
Is the paper rolled around the presseure roller?
NO
Feeds multiple pages?
NO
Check the roller and ribs of fuser are in place, and remove burrs, if any
-> Remove the factors of jam
YES
YES
Remove the fuser, remove the paper and replace the pressure roller, if necessary
Remove any factors
Severe skew when feeding?
NO
The paper came out through between fuser and developer?
NO
Check the input path to the fuser (such as mis-assembly)
YES
YES
Adjust the paper guides to fit the paper width
The force of springs pressing the developer is weak
-> Check guide-DEVE
Too thin or sensitive paper to static electricity?
NO
Check guide transfer is grounded Check the shutter prevents feeding
YES
Use the recommended paper

4.2.3.5 The cause and solutions of bad environment of the software

NOTE - *Always try to an internal page and a copy to be sure that the machines is working and the problem is related to SW.*

4.2.3.5(a) The printer is not working (1)

Description : While Power turned on, the printer is not working in the printing mode.

Check and Cause	Solution
1. Check if the PC and the printer is properly connected and the toner cartridge installed. 2. Printing is nor working in the Windows. 3. Check if the printer cable is directly connected to peripheral devices	1. Replace the printer cable. If the problems not solved even after the cable replaced, check the amount of the remaining tone. 2. Check if the connection between PC and printer port is proper. If you use windows, check if the printer driver in the controller is set up. If the printer driver is properly set up, check in which program the printing is not working. The best way to find out is to open the memo pad to check the function of printing. If it is not working in a certain program, adjust the setup the program requires. Sometimes, the printout is normal within the Windows basic programs, but it's not working in a particular program. In such case, install the new driver again. If not working in the Windows basic program, Check the setup of the port of CMOS is on ECP. And check the address of IRQ 7 and 378 3. If the scanner needs to be connected to the printer, first the remove the scanner from the PC to see if the printer is properly working alone.

4.2.3.5(b) The printer is not working (2)

Description : After receiving the printing order, no response at all or the low speed of printing occurs due to wrong setup of the environment rather than malfunction of the printer itself.

Check and Cause	Solution
1. Secure more space of the hard disk. 2. Printing error occurs even if there is enough space in the hard disk. 3. Check the parallel-port-related items in the CMOS Setup. 4. Reboot the system to print.	1. Not working with the message 'insufficient printer memory' means hard disk space problem rather than the RAM problem. In this case, provide more space for the hard disk. Secure more space using the disk utilities program. 2. The connection of the cable and printer port is not proper. Check if the connection is properly done and if the parallel port in CMOS is rightly set up. 3. As a printer port, Select ECP or SPP among SPP(Normal), ECP, and EPP modes(increase printing speed) SPP normal mode support 8-bit data transfer, while ECP Mode transfer the 12-bit data. 4. If the regular font is not printing, the cable or the printer driver may be defective. Turn the PC and printer off, and reboot the system to print again. If not solved, double-click the printer in my computer If the regular fonts are not printed this time again. the cable must be defective so replace the cable with new one.

4.2.3.5(c) Abnormal Printing

Description : **The printing is not working properly even when the cable has no problem. (even after the cable is replaced) If the printer won't work at all or the strange fonts are repeated, the printer driver may be defective or wrong setup in the CMOS Setup.**

Check and Cause	Solution
1. Set up the parallel port in the CMOS SETUP. 2. Printer Driver Error. 3. Error message from insufficient memory. (The printing job sometimes stops or due to insufficient virtual memory, but it actually comes from the insufficient space of the hard disk.)	1. Select SPP(Normal) or ECP LPT Port the among ECP, EPP or SPP in the CMOS Setup. 2. Check the printer in My Computer.(to see if the printer driver is compatible to the present driver or delete the old driver, if defective and reinstall the new driver) 3. Delete the unnecessary files to secure enough space of the hard disk and start printing job again.

4.2.3.5(d) SPOOL Error

Description : **To spool which stands for "simultaneous peripheral operations online" a computer document or task list (or "job") is to read it in and store it, usually on a hard disk or larger storage medium so that it can be printed or otherwise processed at a more convenient time (for example, when a printer is finished printing its current document).**

Check and Cause	Solution
1. Insufficient space of the hard disk in the directory assigned for the basic spool. 2. If the previous printing error not solved. 3. When expected to collide with other program. 4. When an application program or the printer driver is damaged. 5. When some files related to OS are damaged or virus infected. 6. Memory is less than suggested one.	1. Delete the unnecessary files to provide more space to start printing job. 2. If there are some files with the extension name of ****.jnl, Delete them and Reboot the Windows to restart printing job. 3. Shut down all other programs except the current one, if possible. 4. Delete the printer driver completely and reinstall it. 5. After rebooting the computer, check for viruses, restore the damaged files and reinstall the program to do the printing job. 6. Add up enough memory to the PC.

How to delete the data in the spool manager.

In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown.
Select the document to be deleted and check the delete menu.
If you intend to delete the current document being printed, the data being transferred to the printer will be put out and then the document is removed. Before choosing the document, the menu is still inactive.
Or put the document out of the list and repeat the routine as in the above or finish the spool manager.